

HARCOURT SCHOOL PUBLISHERS

Think Math!

 **Texas Edition**

Student Work Text

Lesson Activity Book



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 **Harcourt**
SCHOOL PUBLISHERS

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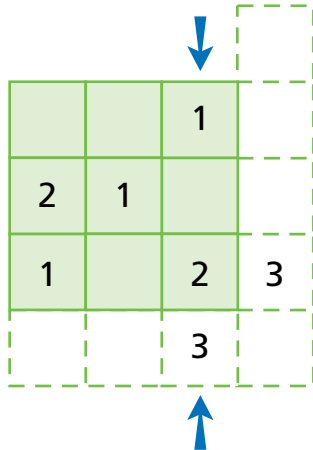
Introducing Magic Squares

NCTM Standards 1, 6, 7, 8, 10

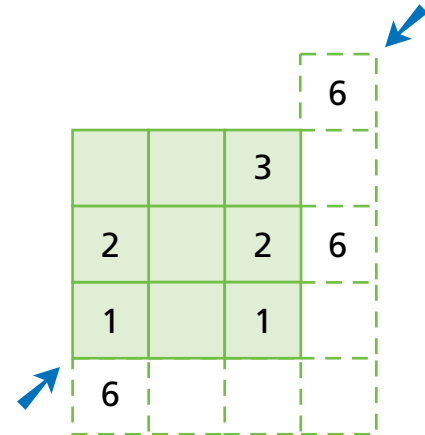
 TEKS 4.3A, 4.14B

In a magic square, each row, column, and diagonal sums to the same number. Complete each magic square and complete the number sentence for one of the rows, columns, or diagonals.

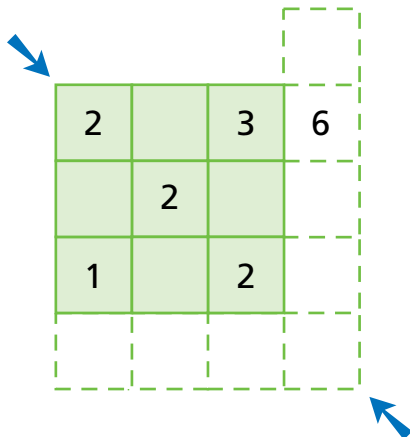
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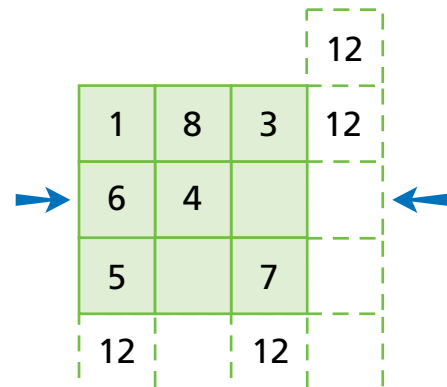
2



3



4



Complete each magic square.

5

	5	2	
1	4		12
6	3		
		12	

6

			30
	10		
18		9	
	30		30

7

3	19		
	10	5	
	1		
			30

8

	25		
		21	42
23		16	

9 Katy and Sasha each have the same number of coins. Katy has 3 quarters, 2 dimes and 8 nickels. Sasha has 5 quarters and 1 dime. If the rest of her coins are nickels, how many nickels does Sasha have?

_____ nickels

10 Challenge

		5

$4 + 12 + 20 = \square$

$13 + 18 + 5 = \square$

$18 + 12 + 6 = \square$

$13 + 12 + 11 = \square$

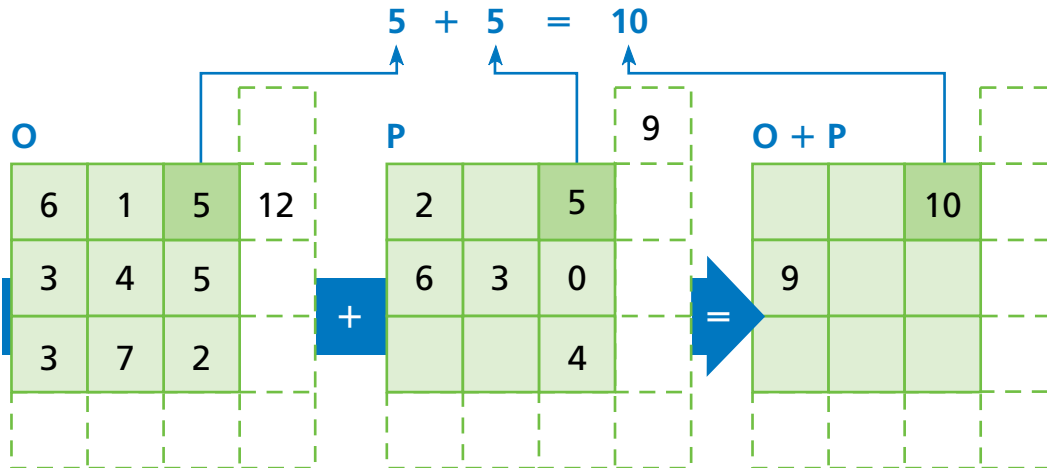
Adding Magic Squares

NCTM Standards 1, 2, 6, 7, 8, 10

TEKS 4.3A

Is the sum of two magic squares always a magic square?
Complete the magic squares and then add them together.

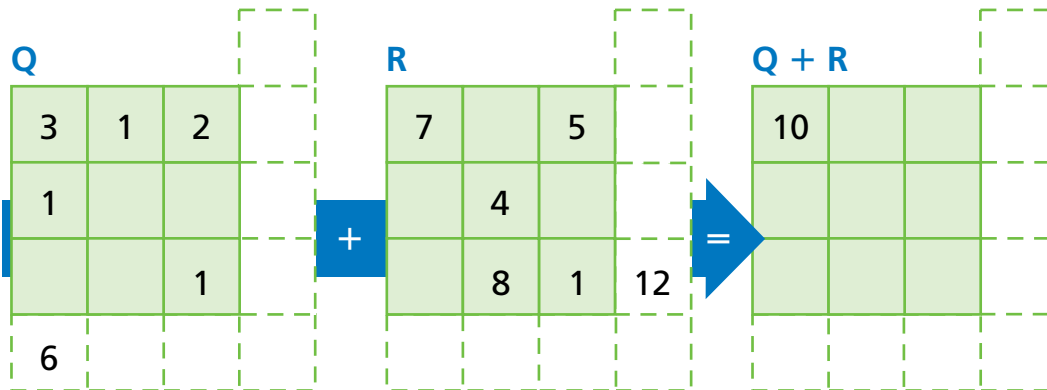
1



O + P
is a magic
square.

True ☐False ☐

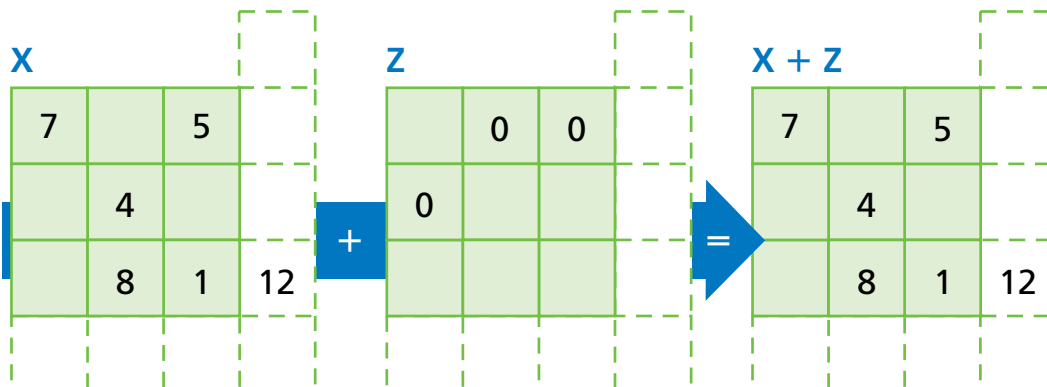
2



Q + R
is a magic
square.

True ☐False ☐

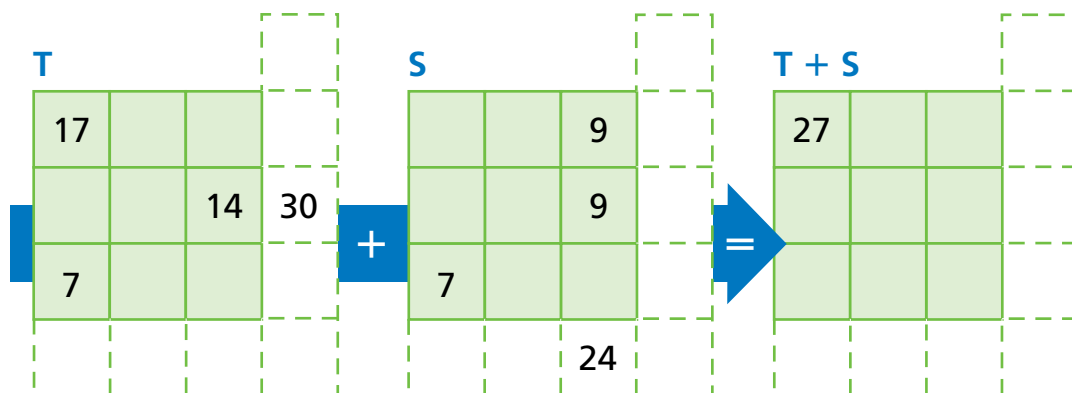
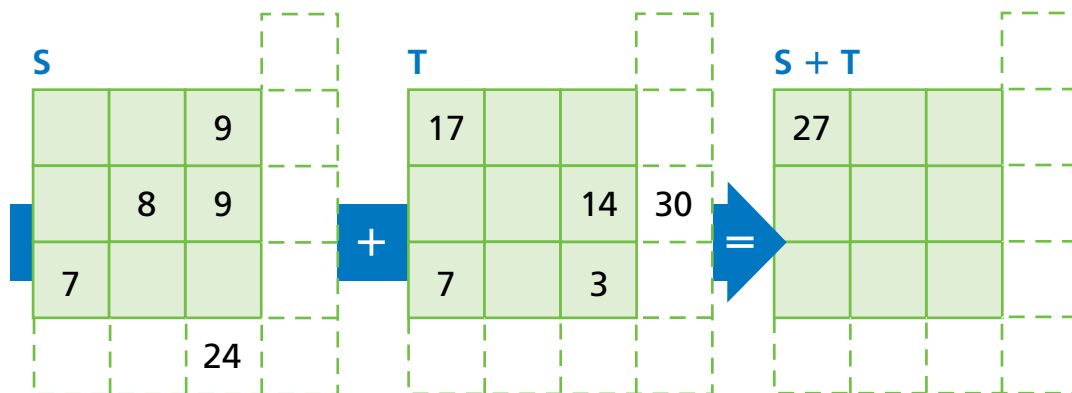
3



X + Z
is a magic
square.

True ☐False ☐

4

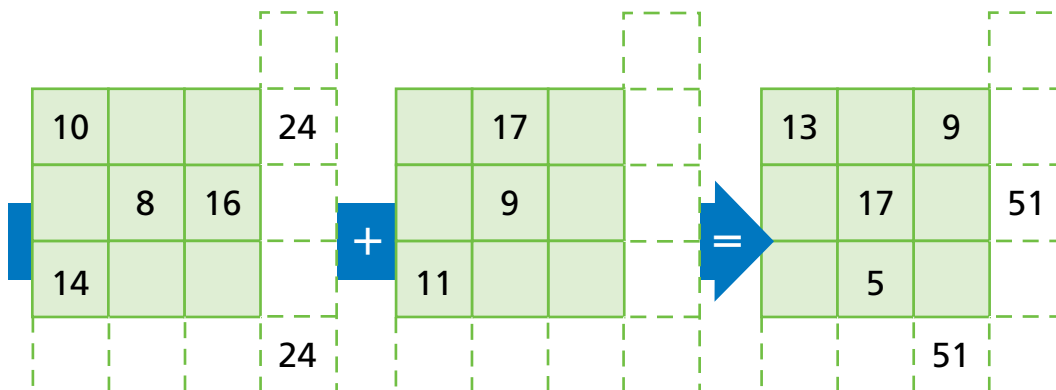


$S + T = T + S$

True ☐

False ☐

5 Challenge Complete these magic squares.



Subtracting Magic Squares

NCTM Standards 1, 2, 6, 7, 8, 10

TEKS 4.3A, 4.14A

Complete the magic squares. Find their difference.

1

$5 - 4 = 1$

D				E				D - E
9	5	7		2	4	0		
5	7	9		0	2	4		
7	9	5		4	0	2		

D - E is a magic square.

True ☐

False ☐

2

F				G				F - G
17		15		12		8		
	14			5	9	13		
		11						

F - G is a magic square.

True ☐

False ☐

3

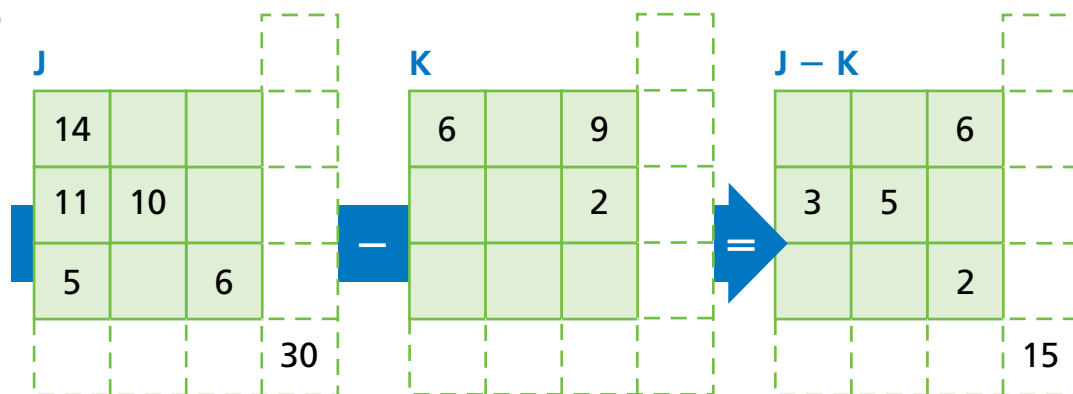
H				I				H - I
		20		10				
					15			
30	5	40		20		20		

H - I is a magic square.

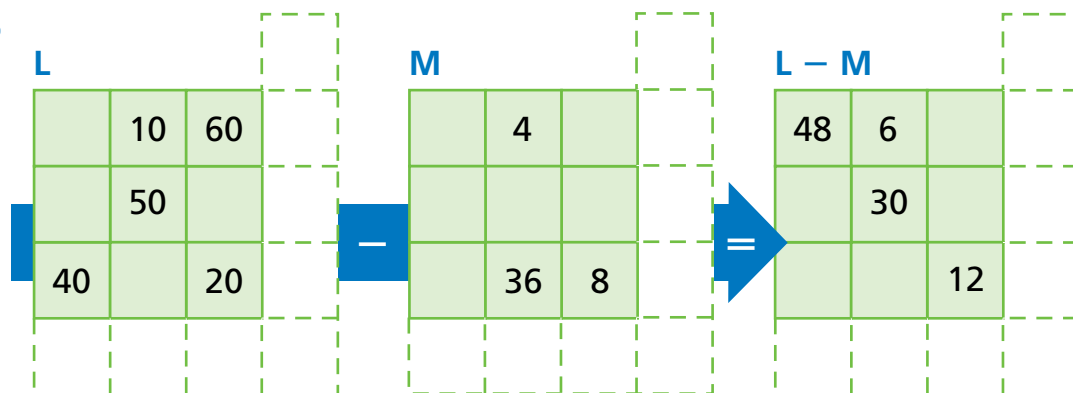
True ☐

False ☐

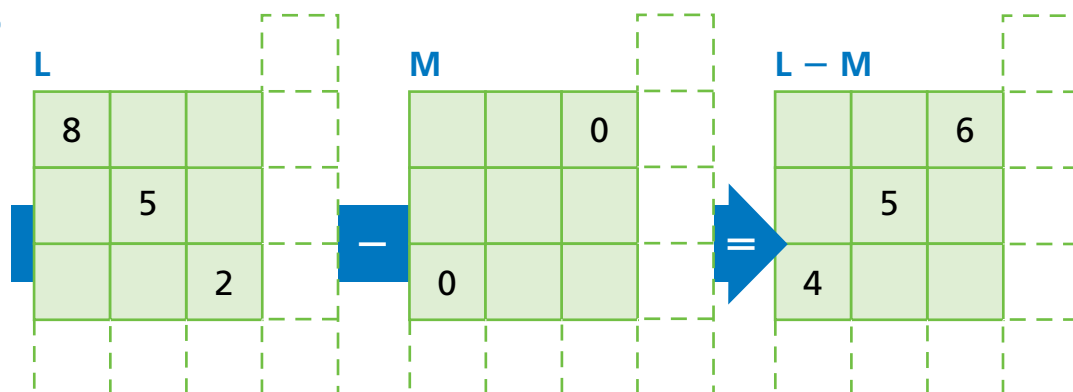
4



5



6



7 Challenge Jennifer paid for a stamp with a \$1 bill.
The stamp cost 53¢. How much change did she receive?

If the cashier gave her the fewest possible coins in change,
how many coins did she receive? What were they?

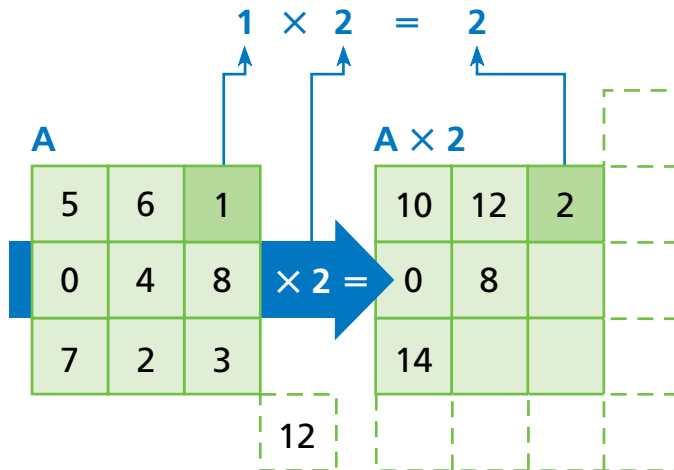
Multiplying Magic Squares

NCTM Standards 1, 2, 6, 7, 8, 10

 TEKS 4.4C, 4.4D, 4.4E, 4.14A

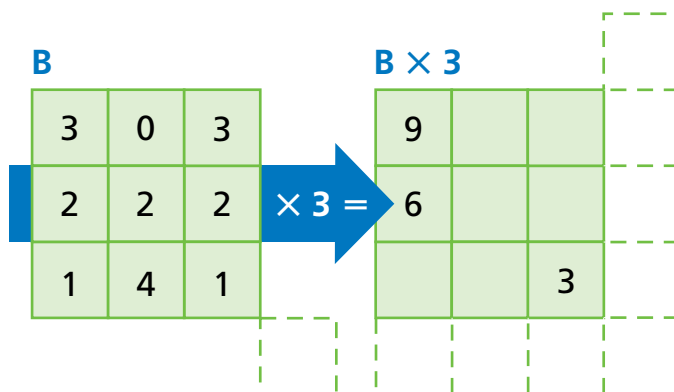
Multiply each magic square by the given number.

1



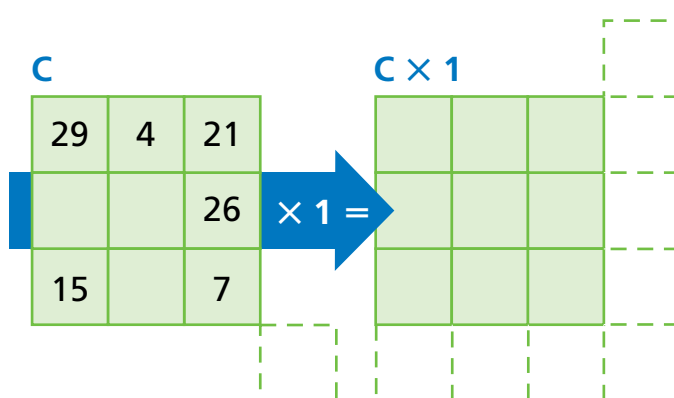
Row, column, or diagonal sum before multiplication	12
Numbers in A are multiplied by	2
Row, column, or diagonal sum after multiplication	24

2



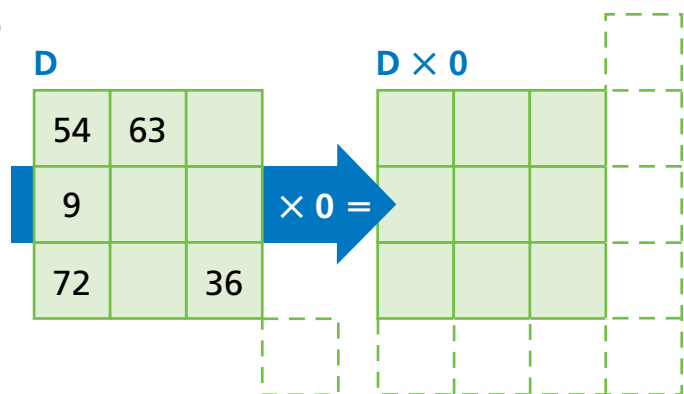
Row, column, or diagonal sum before multiplication	
Numbers in B are multiplied by	
Row, column, or diagonal sum after multiplication	

3

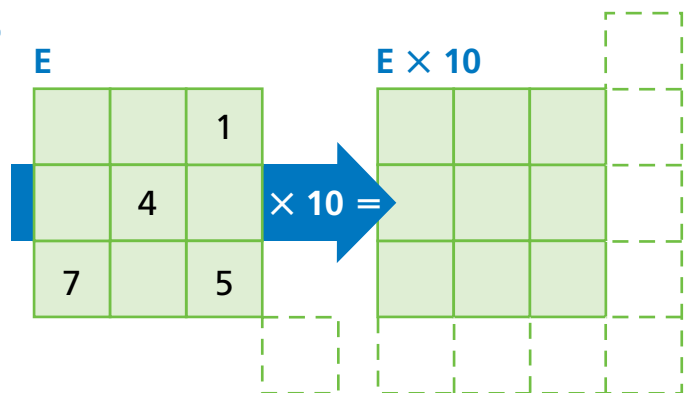


Row, column, or diagonal sum before multiplication	
Numbers in C are multiplied by	
Row, column, or diagonal sum after multiplication	




4



5



6

	A	B	C	D	E	
Row, column or diagonal sum before multiplication						
Numbers are multiplied by						
Row, column, or diagonal sum after multiplication						

7 Challenge Fill in the blanks with + , - , \times , \div , or = .



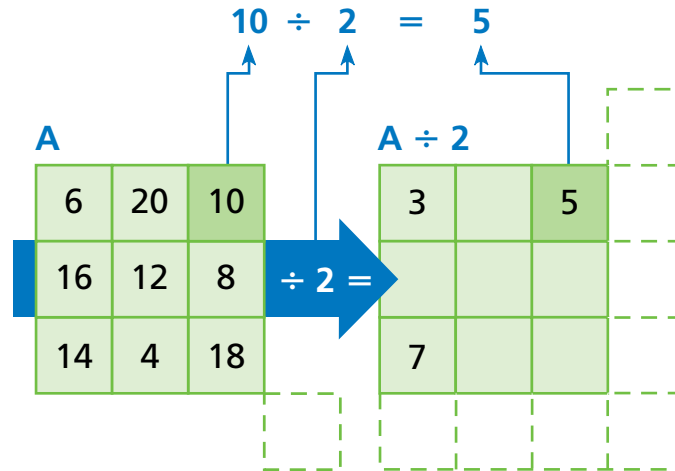
Dividing Magic Squares by Numbers

NCTM Standards 1, 6, 8, 9, 10

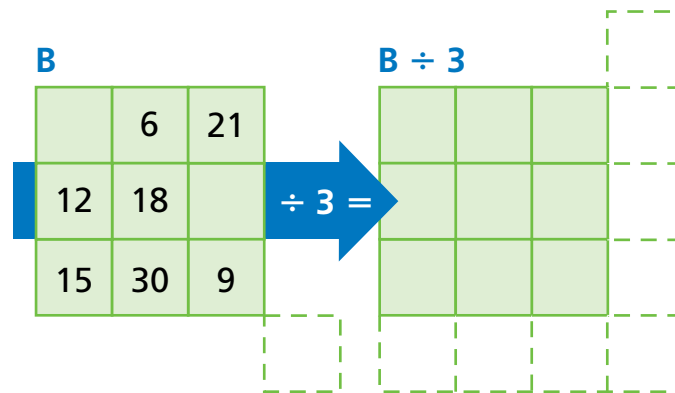
 TEKS 4.4E

Divide each magic square by the given number.

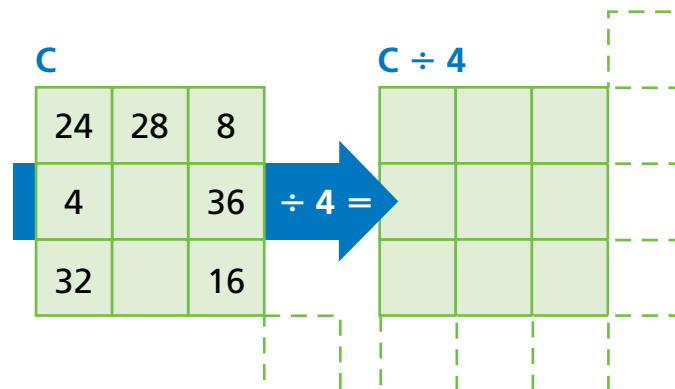
1



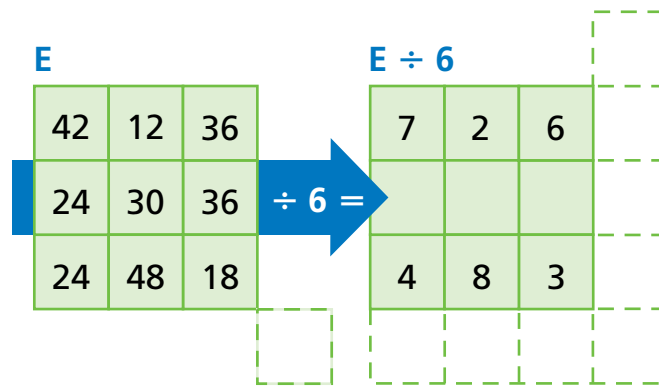
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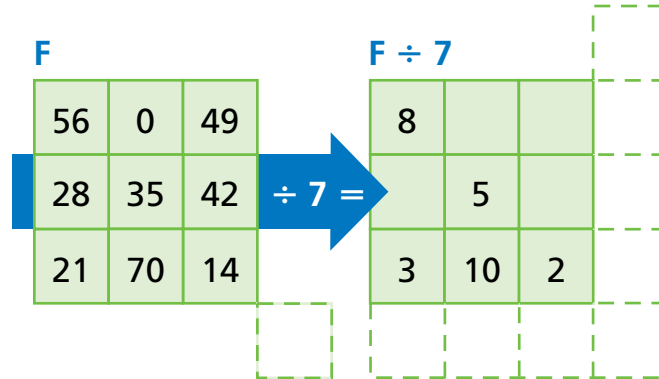
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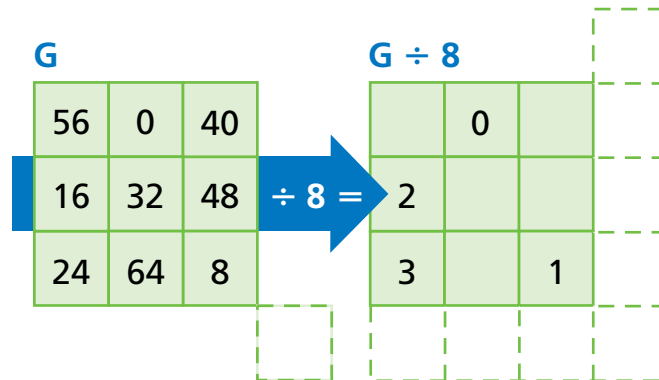
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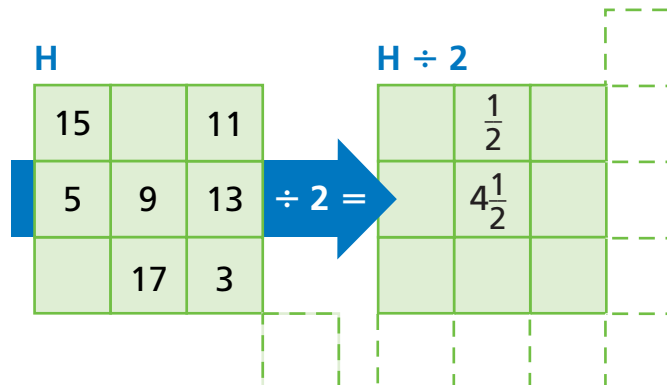
5



6



7 Challenge



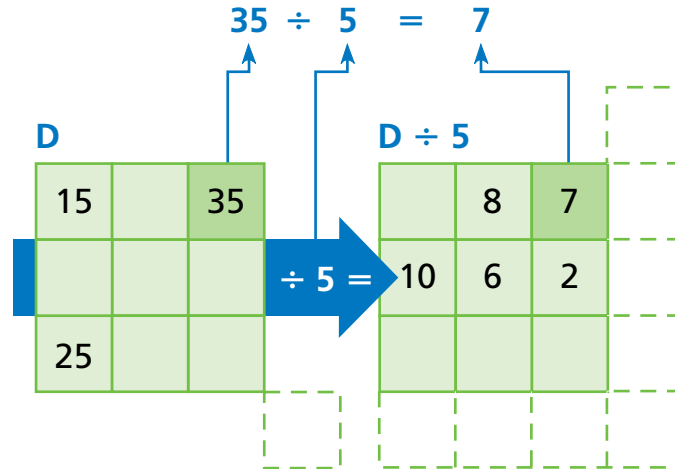
Working Backward and Forward

NCTM Standards 1, 6, 8, 9, 10

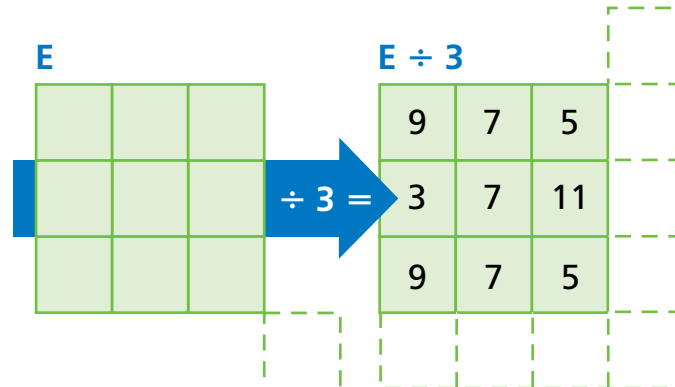
TEKS 4.4C, 4.4D, 4.4E, 4.14A

Complete the magic squares.

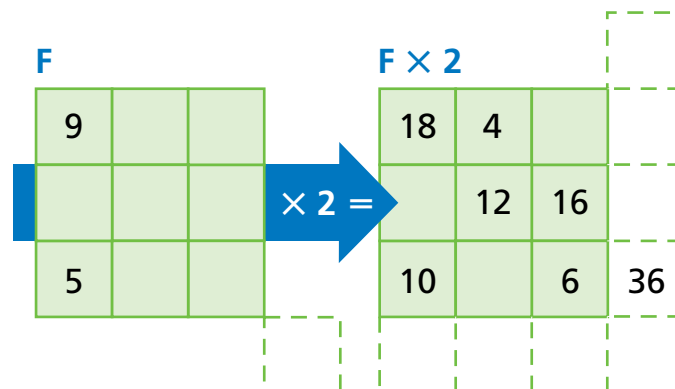
1



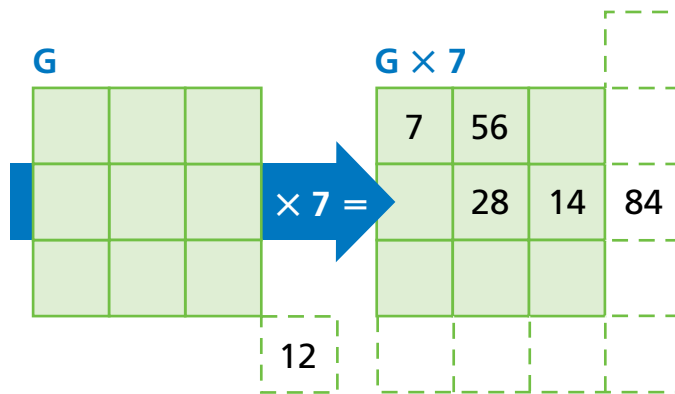
2



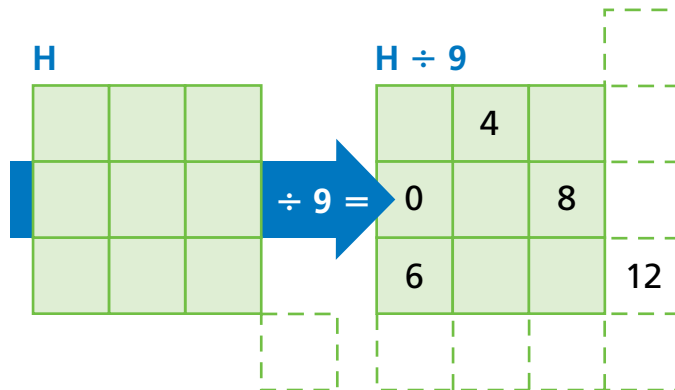
3



4



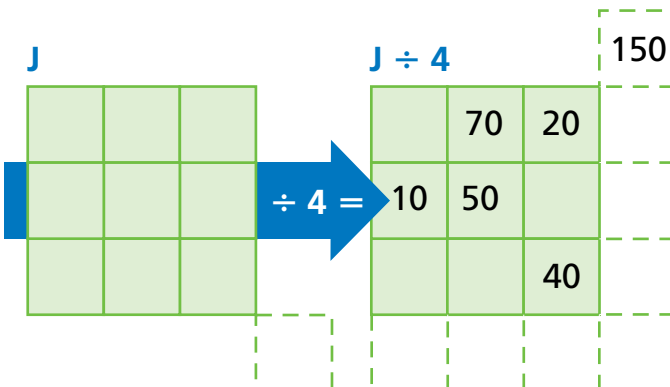
5



- 6 A class split up into 6 teams to work on science projects. Two of the teams had 6 students, the rest had 5 students. How many students were in the class?

_____ students

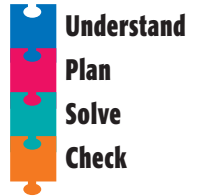
7 Challenge



Problem Solving Strategy

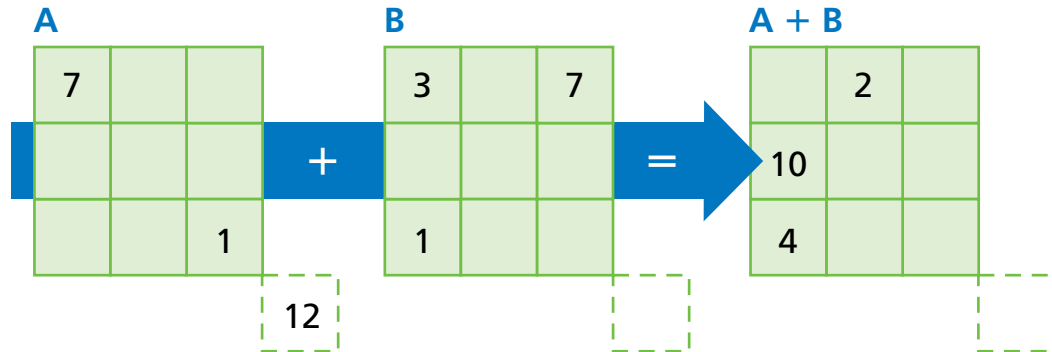
Work Backward

NCTM Standards 1, 2, 6, 7, 8, 10

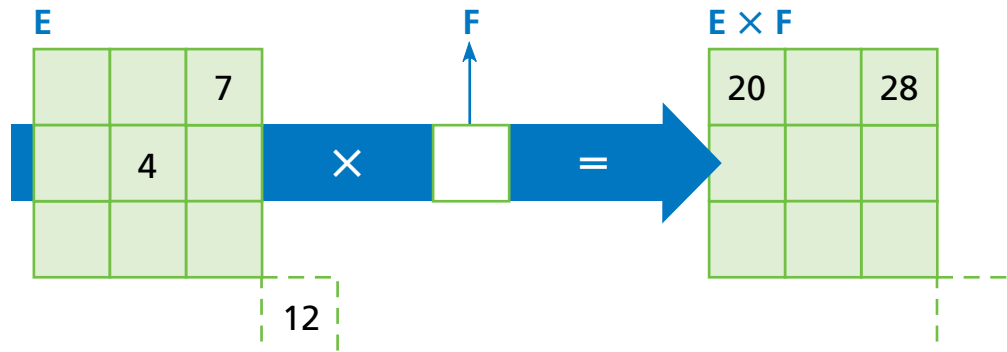
 TEKS 4.14A, 4.14B, 4.14C


Solve each problem.

1



2



- 3 Todd sold ornaments at a craft fair. The first customer bought 5 ornaments. The second customer bought half of what Todd had left. The third customer bought 8 ornaments. After that Todd had 2 ornaments left. How many ornaments did Todd start with?

_____ ornaments

Problem Solving Test Prep

Choose the correct answer.

1 Which set of input-output values follows the rule in the table?

INPUT	2, 7	3, 9	1, 0	5, 1
OUTPUT	14	27	0	5

- A. Input: 4, 6; Output: 10
 - B. Input: 2, 8; Output: 10
 - C. Input: 5, 2; Output: 10
 - D. Input: 10, 2; Output: 10
- 2 The sum of the magic square is 15. What are the values of A, B, and C?

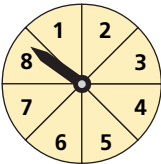
A	9	B
7	C	3
6	1	8

- A. A = 5, B = 4, C = 2
- B. A = 5, B = 2, C = 4
- C. A = 4, B = 5, C = 2
- D. A = 2, B = 4, C = 5

3 Which is the only figure that is not a parallelogram?

- A. trapezoid
- B. square
- C. rhombus
- D. rectangle

4 For one spin on this spinner, which statement is true?



- A. An odd number is more likely than an even number.
- B. A number greater than 5 is more likely than a number less than 4.
- C. An even number is more likely than an odd number.
- D. A number greater than 4 is more likely than a number less than 4.

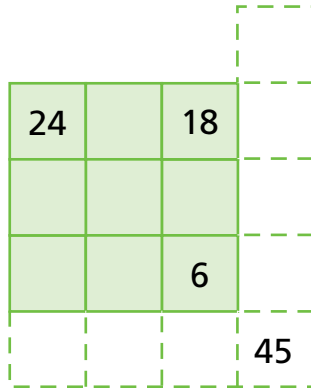
Show What You Know

Solve each problem. Explain your answer.

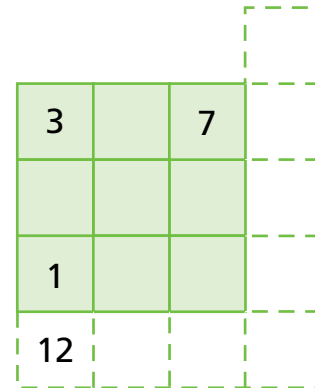
5 Jason wants to buy a book for \$19. He has a \$10 bill and two \$1 bills. His father lends him money to pay the rest. What is the least number of bills his father can give him to buy the book? Explain.

Complete the magic squares. **Lesson 1**

1

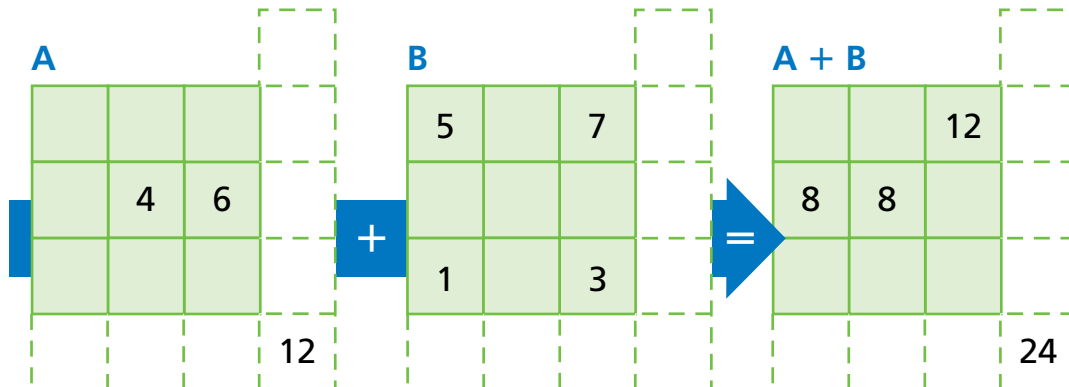


2



Complete the magic squares. Then add them. **Lessons 2 and 3**

3



- 4 There are 27 students in Mrs. Albia's class. Fifteen of the students are girls. Write a number sentence to show how many boys are in Mrs. Albia's class. **Lessons 2 and 3**

- 5 Solve. **Lessons 4 and 5**

$$(14 \div 2) \times 2 = \underline{\hspace{2cm}}$$

$$(36 \div 2) \times 2 = \underline{\hspace{2cm}}$$

Multiply and divide. Lessons 4 and 5

6 **E**

3	0	
	2	2

$\times 7 =$

E \times 7

21		21
14		
	28	7

6

7 **H**

13	6	8
4	9	14
10	12	5

$\times 3 =$

H \times 3

$\div 3 =$

(H \times 3) \div 3

Complete the magic square. Lessons 5 and 6

8 **I**

		35
50		

\div

J

$=$

I \div J

10		12

27

9 Phillip went to the music store and bought a CD for \$14 and a DVD for \$9. He had \$6 in his wallet when he got home. How much money did he have before he went to the music store? Lesson 7

10 Maria had 36 stamps in her collection. Each week she added 6 more stamps. How many weeks passed until Maria had 72 stamps? Explain. Lesson 7

Introducing Arrays

NCTM Standards 1, 2, 6, 7, 8, 9, 10

TEKS 4.4A, 4.4B, 4.4C, 4.15A

Use counting shortcuts to find the number of squares in each array.

1



4

2



6

3



4



5



6



7



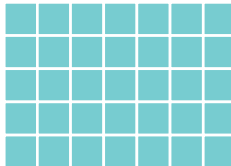
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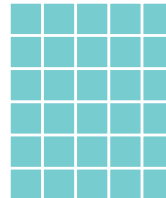
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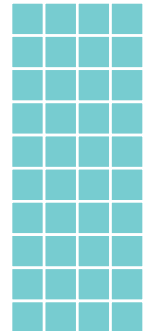
10



11



12

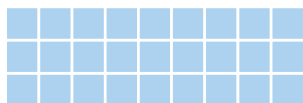


- 13 Mrs. Wu arranged the desks of her classroom into 4 rows of 7 desks. How many desks are there in her classroom? Show how you solved the problem with words, pictures, or numbers.

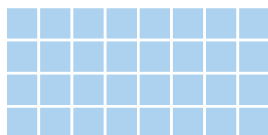
_____ desks

- 14 Use counting shortcuts to find the number of squares in each array.

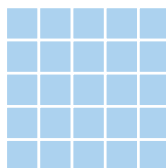
A



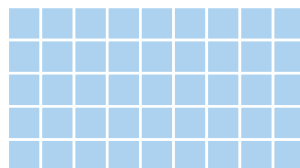
B



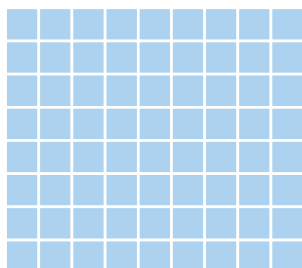
C



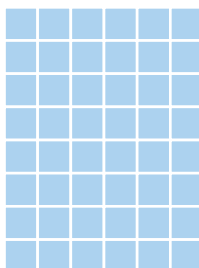
D



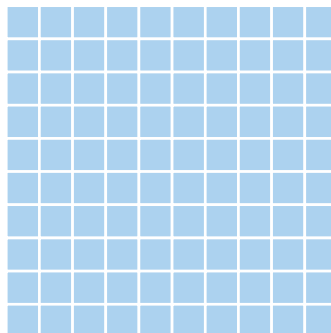
E



F



G



- 15 **Challenge** Write the letter of each of the above arrays A through G in the appropriate white box in the table. You will write some letters twice.

×	1	2	3	4	5	6	7	8	9	10
1										
2										
3									A	
4										
5										
6										
7										
8										
9										
10										

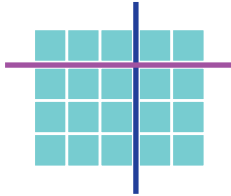
Separating Arrays

NCTM Standards 1, 2, 6, 7, 8, 9, 10

TEKS 4.4A, 4.4C

Complete the diagrams and number sentences.

1

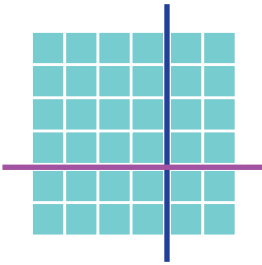


1×3	
	3×2

	2
9	

$$(1 \times 3) + (3 \times 3) + (1 \times 2) + (3 \times 2) = \boxed{20}$$

2

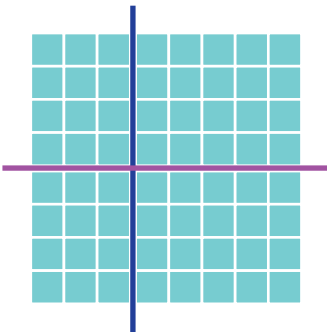


4×4	

8	

$$(4 \times 4) + (2 \times 4) + (\boxed{} \times \boxed{}) + (2 \times 2) = \boxed{}$$

3

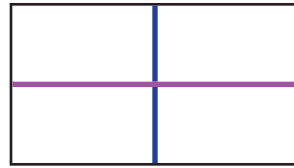
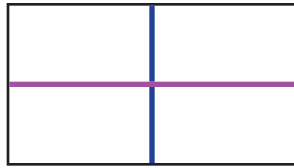
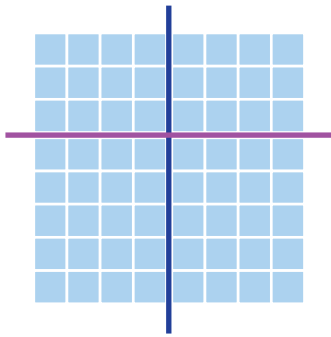


4×3	

	20

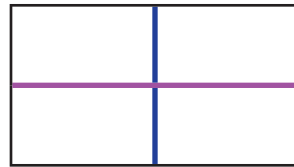
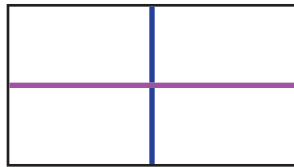
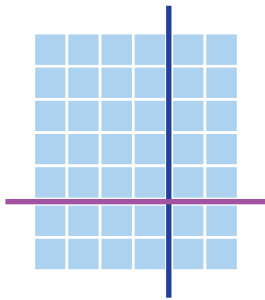
$$(4 \times 3) + (4 \times 3) + (4 \times 5) + (\boxed{} \times \boxed{}) = \boxed{}$$

4



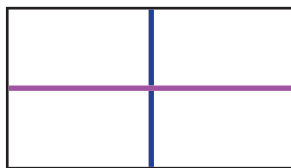
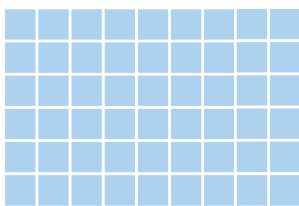
$$(\square \times \square) + (\square \times \square) + (\square \times \square) + (\square \times \square) = \square$$

5



$$(\square \times \square) + (\square \times \square) + (\square \times \square) + (\square \times \square) = \square$$

6 Challenge Separate the array into four sections and complete the diagrams.



Write a number sentence to help find the total number of squares in the array.

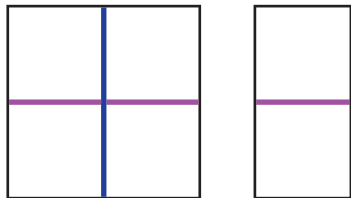
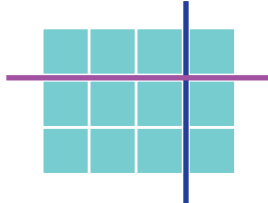
Adding Array Sections

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.3A, 4.4A, 4.4C, 4.16B

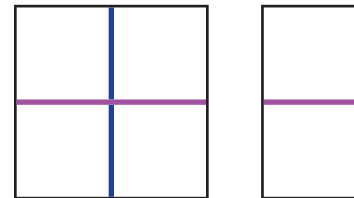
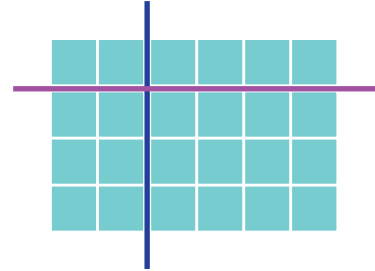
Complete the diagrams. Then find the number of squares in each array.

1



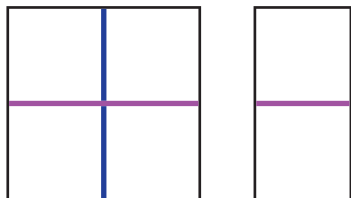
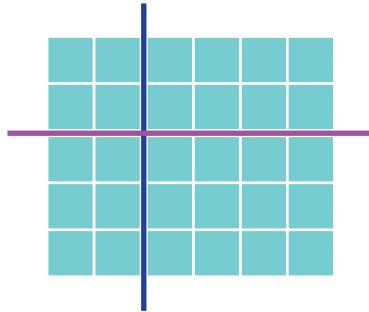
$3 \times 4 = \square$

2



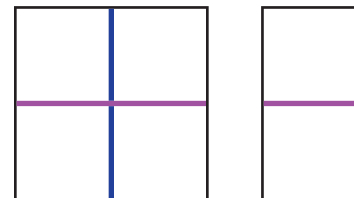
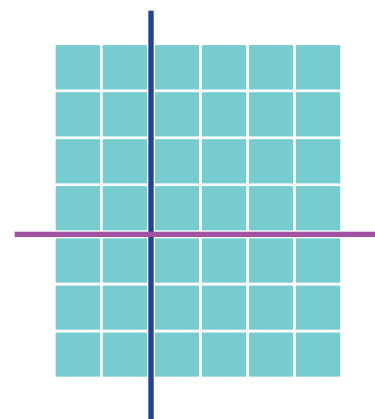
$4 \times 6 = \square$

3



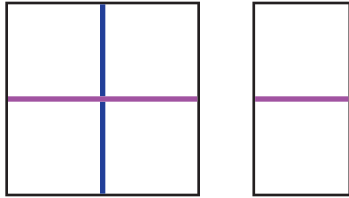
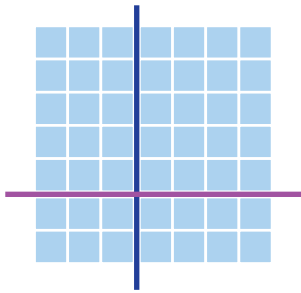
$5 \times 6 = \square$

4



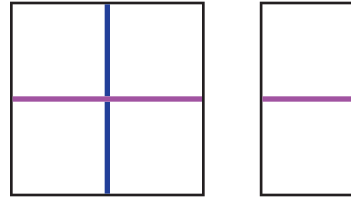
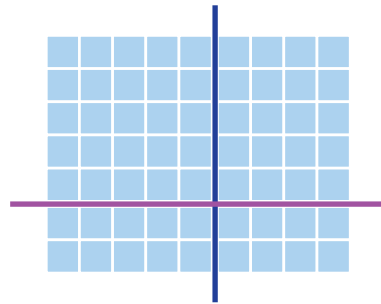
$7 \times 6 = \square$

5



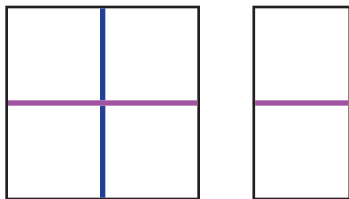
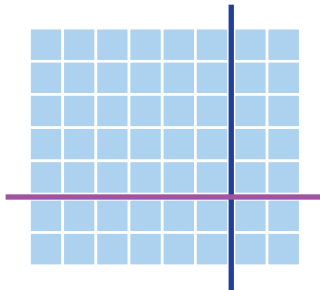
$$\square \times \square = \square$$

6



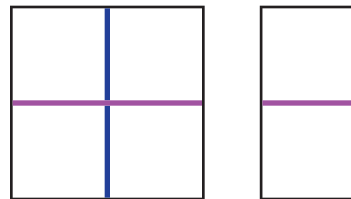
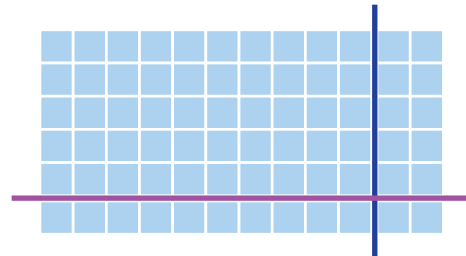
$$\square \times \square = \square$$

7



$$\square \times \square = \square$$

8



$$\square \times \square = \square$$

9 Challenge Mr. Jones bought 7 six-packs of yogurt. Mr. Gomez bought 4 six-packs of yogurt. How many yogurts do they have? Show how you solved the problem.

_____ yogurts

Exploring a Multiplication Shortcut

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.3A, 4.4A, 4.4B, 4.4D, 4.4E, 4.6A, 4.15A

Look for shortcuts in completing the tables and finding the number of squares in the arrays.

1

	6	2	8	10	11
× 2	12				

2

	2	5	9	0	10
× 3	6				

3

	1	3	5	6	8
× 2					
× 4					
× 6					

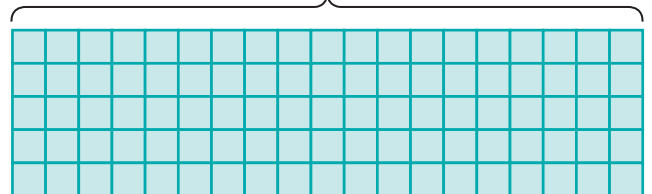
4

	2	0	10	6	9
× 3					
× 6					
× 9					

5

	1	4	5	9	10
× 5					

19

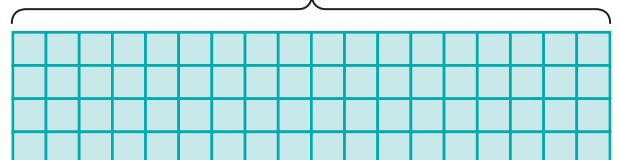


_____ squares

6

	3	4	7	8	11
× 4					

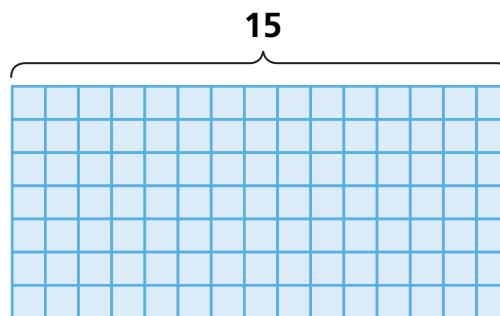
18



_____ squares

7

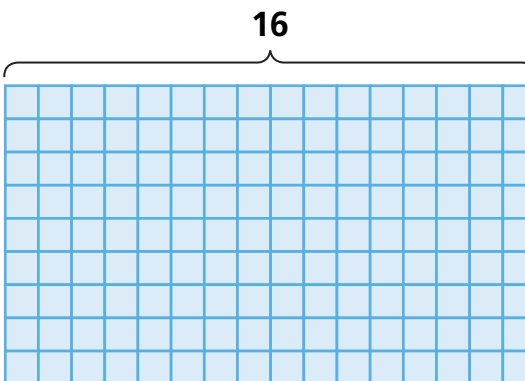
	3	4	5	7	12
$\times 7$					



_____ squares

8

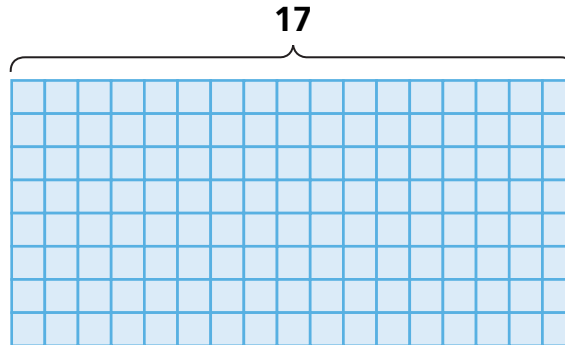
	2	3	5	8	11
$\times 9$					



_____ squares

9

	2	4	5	9	14
$\times 8$					



_____ squares

10 Challenge Sue wants to give 7 party favors to everyone at her party. There are 14 boys and 13 girls at her party. How many favors does she need? Explain your answer using numbers, pictures, or words.

_____ favors

Using a Multiplication Shortcut

NCTM Standards 1, 2, 6, 7, 9, 10

 TEKS 4.3A, 4.4A, 4.4D

Fill in the addition and multiplication tables.
Look for shortcuts to help you.

1

+	1	5	2	6	4	10
3				9		
1						
4			6			
5						
7						

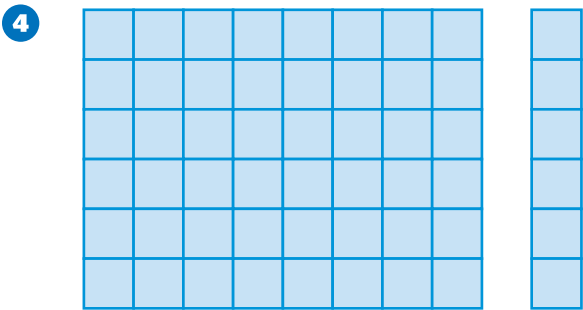
2

×	1	5	2	6	4	10
3						
1		5				
4			8			
5						
7						

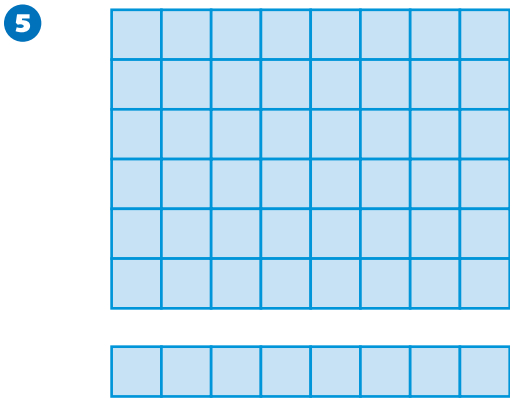
3

×	3	6	9	10	5	15
6						
2			18			
8						
9						

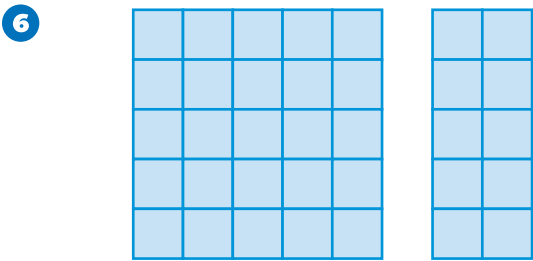
How many more squares are needed in an array when a factor is increased by 1 or 2? How many squares in all?



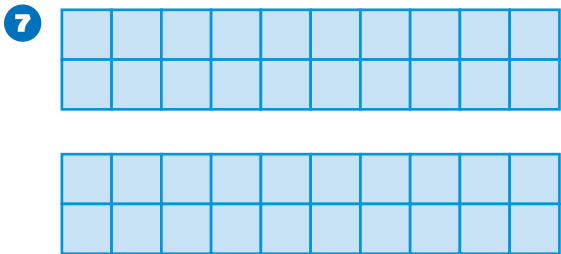
$$(6 \times 8) + 6 = \square$$



$$(\square \times \square) + \square = \square$$



$$(5 \times 5) + (\square \times \square) = \square$$



$$(\square \times \square) + (\square \times \square) = \square$$

8 Challenge Reese has 14 birds and 25 dogs. How many legs do her pets have? Show your work by writing a number sentence.

_____ legs

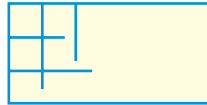
Connecting Multiplication and Division

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.4B, 4.4E

Find the missing numbers to complete the fact family.

1



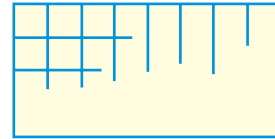
$$3 \times \square = 18$$

$$\square \times 3 = 18$$

$$18 \div 3 = \square$$

$$18 \div \square = 3$$

2



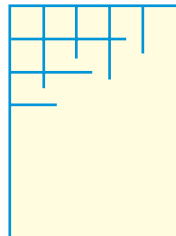
$$\square \times 8 = 32$$

$$8 \times \square = 32$$

$$32 \div \square = 8$$

$$32 \div 8 = \square$$

3



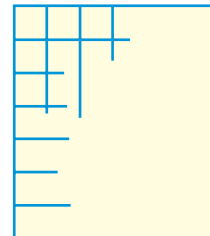
$$\square \times 5 = 35$$

$$5 \times \square = 35$$

$$35 \div \square = 5$$

$$35 \div 5 = \square$$

4



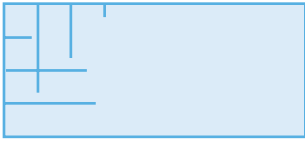
$$7 \times \square = 42$$

$$\square \times 7 = 42$$

$$42 \div 7 = \square$$

$$42 \div \square = 7$$

5



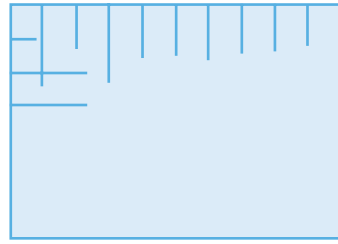
$$\square \times \square = 36$$

$$\square \times \square = 36$$

$$36 \div \square = \square$$

$$36 \div \square = \square$$

6



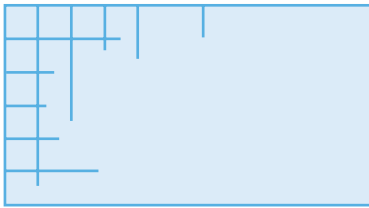
$$\square \times \square = 70$$

$$\square \times \square = 70$$

$$70 \div \square = \square$$

$$70 \div \square = \square$$

7



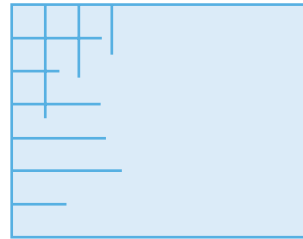
$$\square \times \square = \square$$

$$\square \times \square = \square$$

$$66 \div \square = \square$$

$$\square \div \square = \square$$

8



$$\square \times \square = \square$$

$$\square \times \square = \square$$

$$\square \div \square = \square$$

$$63 \div \square = \square$$

9 Challenge Gregory wants to arrange his 60 books on 5 shelves. He puts the same number of books on each shelf. How many did he put on each shelf? Explain your answer using numbers, pictures, or words.

_____ books on each shelf

Arrays with Leftovers

NCTM Standards 1, 2, 6, 7, 8, 9, 10

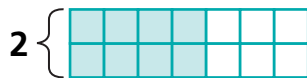
 TEKS 4.4A, 4.4B, 4.4E, 4.15A

Fill in the missing numbers for the full columns and the tiles left over.

1

$$2\overline{)8}$$

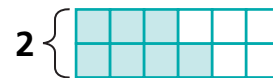
Number of full columns	4
Number of tiles left over	0



2

$$2\overline{)7}$$

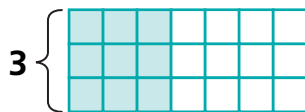
Number of full columns	
Number of tiles left over	1



3

$$3\overline{)9}$$

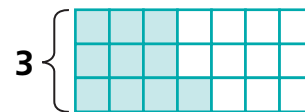
Number of full columns	
Number of tiles left over	



4

$$3\overline{)10}$$

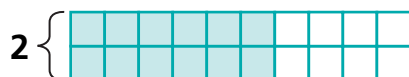
Number of full columns	
Number of tiles left over	



5

$$2\overline{)12}$$

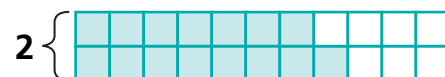
Number of full columns	
Number of tiles left over	



6

$$2\overline{)15}$$

Number of full columns	
Number of tiles left over	



For each of the problems, find the arrangement of tiles with the greatest number of complete columns.

7

4

12

4

Number of total tiles	12	Number of full columns	
Number of tiles in a full column	4	Number of tiles left over	0

8

4

18

4

Number of total tiles	18	Number of full columns	4
Number of tiles in a full column	4	Number of tiles left over	

9

5

17

Number of total tiles	17	Number of full columns	
Number of tiles in a full column	5	Number of tiles left over	

10

5

24

Number of total tiles	24	Number of full columns	
Number of tiles in a full column	5	Number of tiles left over	

11 Challenge

3

16

Number of total tiles	16	Number of full columns	
Number of tiles in a full column	3	Number of tiles left over	

12 Challenge

4

14

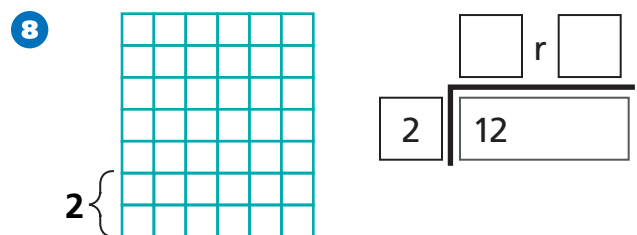
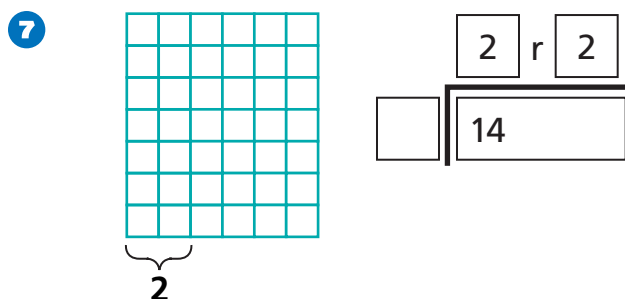
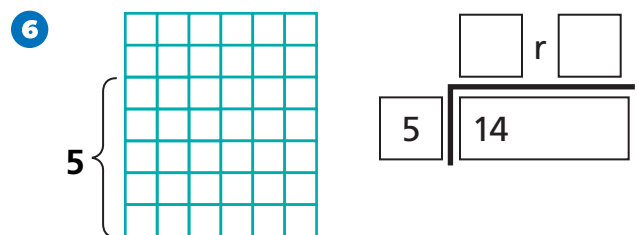
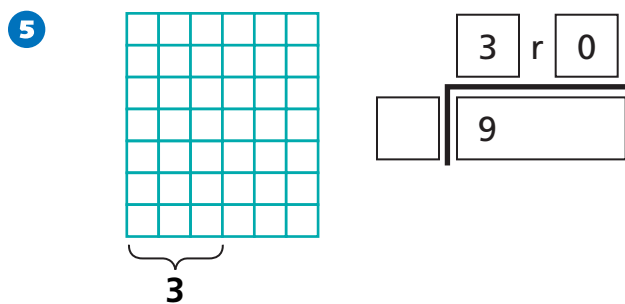
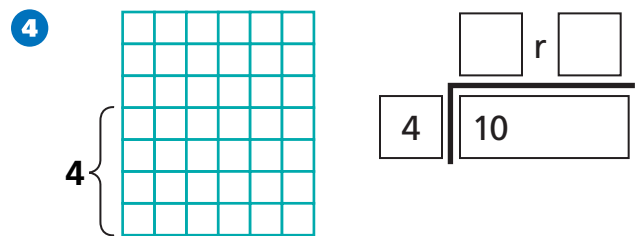
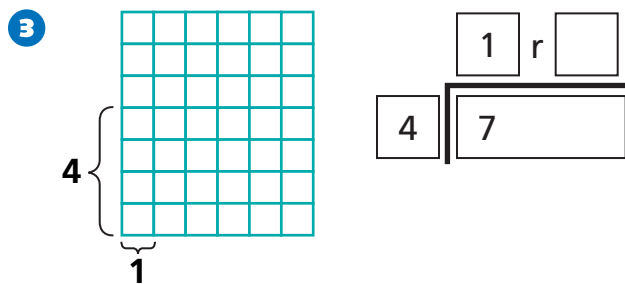
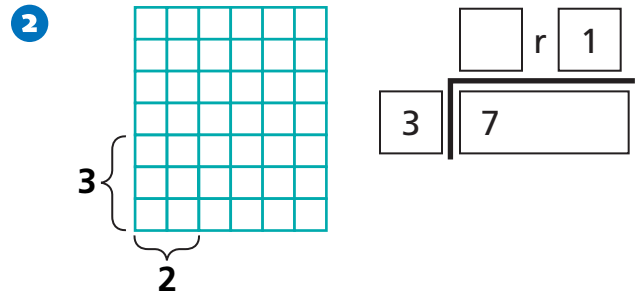
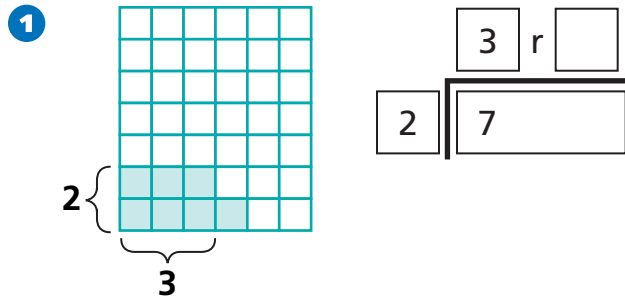
Number of total tiles	14	Number of full columns	
Number of tiles in a full column		Number of tiles left over	

Working with Remainders

NCTM Standards 1, 2, 6, 7, 8, 9, 10


 TEKS 4.4A, 4.4E, 4.15A

Make a diagram of each arrangement and then complete the shorthand based on the diagram.



Complete the shorthand below. Complete the number sentences to check your answers. Draw diagrams if you wish.

9

8

r

3

25

(

×

)

+

=

25

10

r

4

25

(

×

)

+

=

25

11

r

5

25

(

×

)

+

=

25

12

r

6

44

(

×

)

+

=

44

13

Challenge

7

r

1

50

(

×

)

+

=

50

14

Challenge

6

r

50

(

×

)

+

=

32 thirty-two XXXII 2 × 2 × 2 × 2 × 2

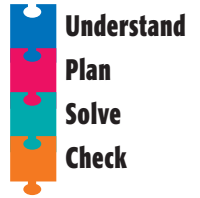
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Problem Solving Strategy

Solve a Simpler Problem

NCTM Standards 1, 2, 6, 7, 8, 9, 10

TEKS 4.3A, 4.4C, 4.4D, 4.14B, 4.14C, 4.15A, 4.16A

**Solve each problem. Show your work.**

- 1 Each of the 19 members of the swim team swam 8 laps. How many laps did the team swim?

_____ laps

- 2 Joey ate 13 pumpkin seeds on each of the 31 days in October. How many pumpkin seeds did he eat in October?

_____ seeds

- 3 Mrs. Mann gave each of her 21 students a box of crayons. Each box had 16 crayons. How many individual crayons did Mrs. Mann give her students?

_____ crayons

- 4 Mr. Zee bought some supplies for his class. The books cost \$19.95, the markers cost \$8.95, the paper cost \$11.07, and the rulers cost \$7.89. Mr. Zee quickly tried to figure out the cost so he knew which dollar bills to pay with. About how much will everything cost?

\$ _____

Problem Solving Test Prep

Choose the correct answer.

- 1 The table below represents the cost of pencils at a school store. Todd wants to buy 6 pencils. How much money will he need?

PENCIL COSTS	
Number of Pencils	Cost
1	6¢
2	12¢
3	18¢

- A. 24¢
- C. 36¢
- B. 30¢
- D. 42¢

- 2 Tomas is learning about multiplying by multiples and wants to solve this riddle.

I am a multiple of 10 and when you multiply me by 4, you get 400.

Which multiple solves this riddle?

- A. 100
- B. 40
- C. 10
- D. 4

Show What You Know

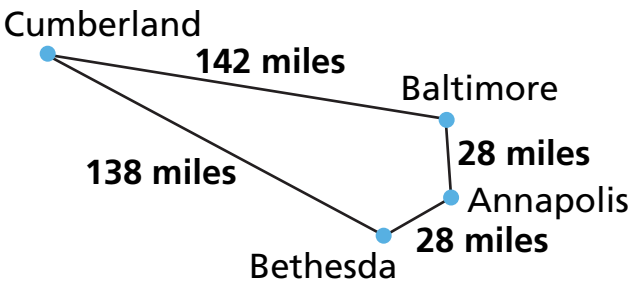
Solve each problem. Explain your answer.

- 3 Nic has a secret number, k . He wrote a clue on the chalkboard for his classmates.

$k + (6 \times 2) = 17$

What is Nic’s secret number? Explain.

- 4 About how much farther is it from Baltimore to Bethesda if you travel through Cumberland than if you travel through Annapolis? Explain.



Review/Assessment

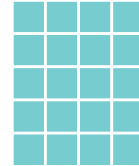
NCTM Standards 1, 2, 6, 7, 8, 9, 10

Find the number of squares in each array. [Lesson 1](#)

1



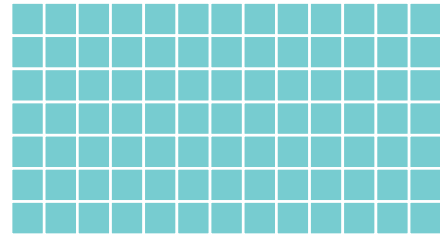
2



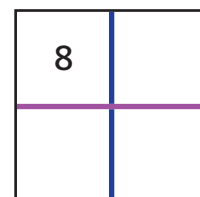
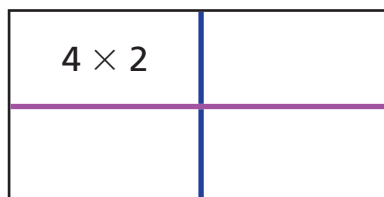
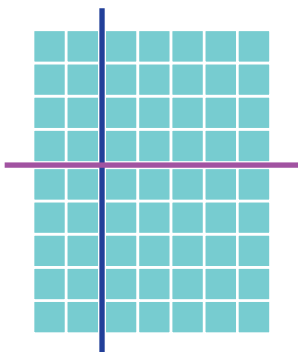
3 Complete the table. Find the total number of squares in the array. Then explain how you got your answer. [Lesson 4](#)

	2	3	4	5	8	10
$\times 7$						

$$7 \times 13 = \square$$

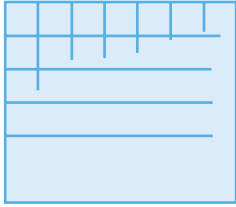


4 Use the array to complete the diagrams. Find the total number of squares in the array. [Lessons 2 and 3](#)



$$9 \times 7 = \square$$

5 Find the missing numbers to complete the fact family. [Lesson 6](#)

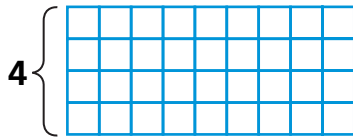


$$\begin{array}{l} \square \times \square = 42 \\ \square \times \square = 42 \\ 42 \div \square = \square \\ 42 \div \square = \square \end{array}$$

Shade the tiles to show the arrangement with the largest number of full columns. Then complete the tables. [Lesson 7](#)

6

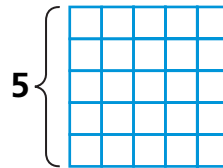
$$4 \overline{)29}$$



Number of full columns	
Number of tiles left over	

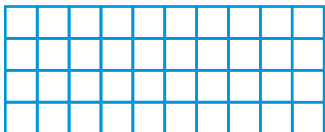
7

$$5 \overline{)13}$$



Number of full columns	
Number of tiles left over	

8 Use the array to complete the shorthand below. Then complete the division and multiplication number sentences to check your answer. [Lesson 8](#)



$$\begin{array}{r} \square \text{ r } \square \\ 4 \overline{)37} \end{array}$$

$$(\square \times \square) + \square = 37$$

Solve the problem. Explain your answer. [Lesson 9](#)



9 Each member of the club has 23 cards. If the 8 members each bring all their cards to a meeting, how many cards are there all together? Explain.

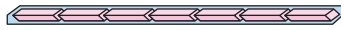
Introducing the Eraser Store

NCTM Standards 1, 2, 6, 7, 8, 9, 10

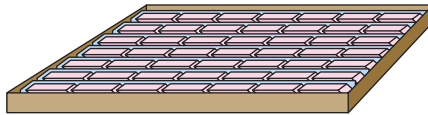
TEKS 4.4D, 4.4E, 4.14A

- 1 Fill in this chart to help with the rest of the page.

7 erasers to
a pack

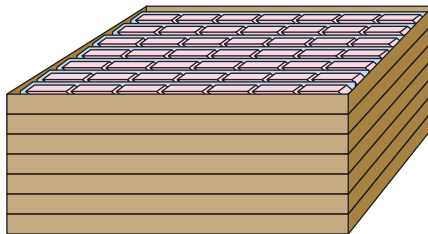


7 packs to
a box



_____ erasers

7 boxes to
a crate



_____ packs

_____ erasers

Eraser Store Rules

Packs, boxes,
and crates must
be FULL!

There must be
as few loose
erasers and as
few containers
as possible.

Find the missing number of packages or the number of erasers that are in each shipment.

Shipment	Packages	Total Number of Erasers
2	0 crates, _____ boxes, _____ packs, _____ erasers	4
3	_____ crates, _____ boxes, _____ packs, _____ erasers	9
4	0 crates, 1 box, 2 packs, 5 erasers	
5	0 crates, 1 box, 3 packs, 5 erasers	
6	0 crates, 2 boxes, 3 packs, 5 erasers	
7	0 crates, 0 boxes, 6 packs, 6 erasers	
8	_____ crates, _____ boxes, _____ packs, _____ erasers	72
9	_____ crates, 3 boxes, 0 packs, _____ erasers	150
10	1 crate, 0 boxes, 0 packs, 2 erasers	
11	1 crate, _____ boxes, _____ packs, _____ erasers	346

Shorthand for Recording Shipments

- an eraser
- a pack of 7 erasers
- a box of 7 packs (____ erasers)
- ▣ a crate of 7 boxes (____ packs or ____ erasers)

Find the missing number of packages or the total number of erasers that are in each shipment.

Shipment	Shorthand	Total Number of Erasers
12	— • • • •	
13		42
14		53
15	▣ —	
16		100
17		70
18	▣ ▣ — —	
19	□ □ □ □	
20		200
21	▣ □ — •	
22 Challenge	▣ □ □ — •	
23 Challenge	▣	392
24 Challenge	▣ ▣	695
25 Challenge		294



Shipment Records at the Eraser Store

NCTM Standards 1, 2, 6, 7, 8, 9, 10








 TEKS 4.4B, 4.4D, 4.4E, 4.14A

Record Keeping in the Eraser Store

Shorthand for recording shipments

- an eraser — a pack of 7 erasers  a box of 7 packs (____ erasers)
-  a crate of 7 boxes (____ packs or ____ erasers)

Complete the records.

Shipment	Total Number of Erasers	Shorthand	  — •
1	8		<u>0</u> , <u>0</u> , <u>1</u> , <u>1</u>
2	35		<u>0</u> , <u>0</u> , <u>5</u> , <u>0</u>
3	353	 — • • •	____, ____, ____, ____
4		 ==	____, ____, ____, ____
5		 — • •	<u>0</u> , <u>1</u> , <u>1</u> , <u>2</u>
6	48		<u>0</u> , <u>0</u> , <u>6</u> , ____
7		  == ::	<u>0</u> , <u>2</u> , <u>2</u> , <u>4</u>
8	67		<u>0</u> , <u>1</u> , <u>2</u> , <u>4</u>





Oops! Someone packed this shipment incorrectly. Find the total number of erasers and fill in the blanks to show the correct way to package the shipment.

Remember:

- Packs, boxes, and crates must be full.
- There must be as few loose erasers and as few containers as possible.

Shipment	Total Number of Erasers	Shorthand	  — •
9		  :: :: ::	____, ____, ____, ____

These shipments have the correct number of erasers, but some are packed incorrectly. Circle each incorrect shipment and write the correct numbers of packages below it.

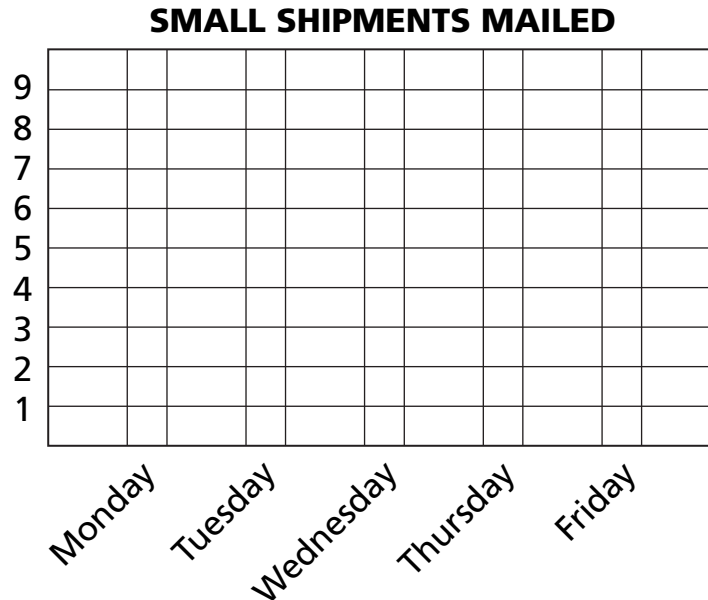
Shipment	Total Number of Erasers	<div> <div></div> <div></div> <div></div> <div></div> </div>
10	1,285	<div> <div>3</div><div>5</div><div>1</div><div>4</div> </div> <div> <div></div><div></div><div></div><div></div> </div>
11	250	<div> <div>0</div><div>4</div><div>7</div><div>5</div> </div> <div> <div></div><div></div><div></div><div></div> </div>
12	591	<div> <div>1</div><div>4</div><div>7</div><div>3</div> </div> <div> <div></div><div></div><div></div><div></div> </div>
13	1,515	<div> <div>4</div><div>2</div><div>5</div><div>10</div> </div> <div> <div></div><div></div><div></div><div></div> </div>
14	601	<div> <div>1</div><div>5</div><div>1</div><div>6</div> </div> <div> <div></div><div></div><div></div><div></div> </div>
15 Challenge	2,105	<div> <div>6</div><div>0</div><div>6</div><div>5</div> </div> <div> <div></div><div></div><div></div><div></div> </div>
16 Challenge	1,080	<div> <div>2</div><div>7</div><div>6</div><div>9</div> </div> <div> <div></div><div></div><div></div><div></div> </div>
17 Challenge	344	<div> <div>0</div><div>6</div><div>6</div><div>8</div> </div> <div> <div></div><div></div><div></div><div></div> </div>

Organizing Shipment Data

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.13B, 4.14A, 4.15A

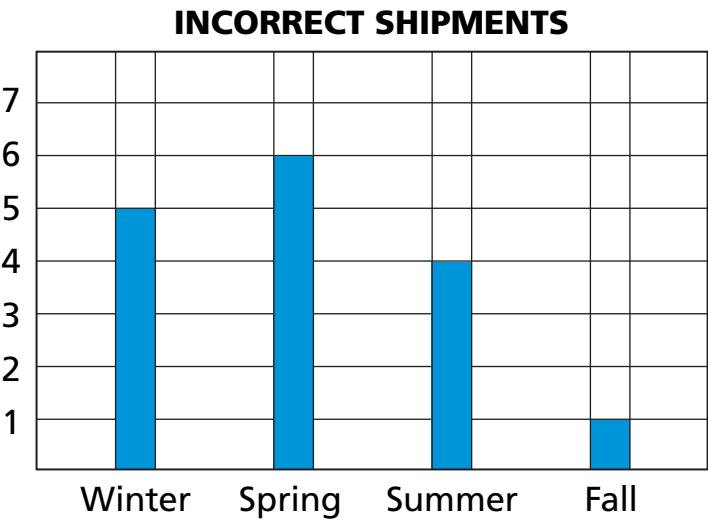
Shade the bar graph using the Organizing Shipment Data: AM13.



- 1 Which day had the most small shipments? _____
- 2 Which day had the fewest small shipments? _____
- 3 Between which two consecutive days did the number of small shipments increase?

- 4 Between which two consecutive days did the number of small shipments decrease?

Answer the questions using the graph.



- 5 How many more incorrect shipments were there in spring than fall? _____
- 6 When were the most incorrect shipments made? _____
- 7 How many incorrect shipments were made over the year? _____



8 Challenge Here are two shipments:

T



U



Without finding the number of erasers in each shipment, tell how many more erasers there are in shipment **U** than there are in shipment **T**. Explain your reasoning.


Combining and Reducing Shipments

NCTM Standards 1, 2, 6, 7, 8, 9, 10


 TEKS 4.3A, 4.4D, 4.14A, 4.15A, 4.16B

Watch the add and subtract symbols!



• an eraser

 a box of 7 packs

— a pack of 7 erasers

 a crate of 7 boxes
Find the results of the shipments after orders are increased or decreased.



1

  — •
0, 0, 2, 3

add 0, 0, 1, 2

_____, _____, _____, _____



2

  — •
0, 3, 1, 4

add 0, 1, 2, 4

_____, _____, _____, _____



3

  — •
0, 0, 2, 1

remove 0, 0, 0, 3

_____, _____, _____, _____



4

  — •
0, 0, 2, 2

+ 0, 0, 1, 6

_____, _____, _____, _____



5

  — •
0, 0, 3, 2

- 0, 0, 1, 4

_____, _____, _____, _____



6

  — •
0, 0, 4, 0

- 0, 0, 2, 6

_____, _____, _____, _____



7

  — •
1, 0, 2, 4

- 0, 0, 1, 5

_____, _____, _____, _____



8

  — •
1, 6, 6, 6

+ 0, 0, 0, 1





_____, _____, _____, _____

9

  — •
2, 0, 0, 0

- 0, 0, 0, 1

_____, _____, _____, _____

				
	1,	2,	3,	1
—	0,	1,	1,	4
____, ____ , ____ , ____				

Use pictures, words, or numbers to explain how you solved the problem.

11 Challenge A school ordered **165** erasers. Use pictures to show your work. The shipment would be:

But the school changed the order to 3 times as many.
Use pictures to show your work. This shipment would be:

Circle the parts of your picture that need repackaging and then write the new shipment.

Packaging Erasers in Tens

NCTM Standards 1, 2, 6, 7, 8, 9, 10

TEKS 4.3A, 4.14A

Bigger containers have arrived!**Watch the add and subtract symbols!**

• an eraser

□ a box of 10 packs

— a pack of 10 erasers

▢ a crate of 10 boxes

Add or subtract the shipments.

1

$$\begin{array}{r} \text{▢} \quad \square \quad \text{—} \quad \bullet \\ 1, \quad 0, \quad 0, \quad 6 \\ + \quad 3, \quad 0, \quad 0, \quad 7 \\ \hline \end{array}$$

_____, _____, _____, _____

2

$$\begin{array}{r} \text{▢} \quad \square \quad \text{—} \quad \bullet \\ 1, \quad 8, \quad 6, \quad 9 \\ + \quad 0, \quad 6, \quad 0, \quad 1 \\ \hline \end{array}$$

_____, _____, _____, _____

3

$$\begin{array}{r} \text{▢} \quad \square \quad \text{—} \quad \bullet \\ 5, \quad 2, \quad 6, \quad 4 \\ - \quad 1, \quad 1, \quad 0, \quad 8 \\ \hline \end{array}$$

_____, _____, _____, _____

4

$$\begin{array}{r} \text{▢} \quad \square \quad \text{—} \quad \bullet \\ 4, \quad 0, \quad 2, \quad 3 \\ - \quad 0, \quad 7, \quad 1, \quad 7 \\ \hline \end{array}$$

_____, _____, _____, _____

5

$$\begin{array}{r} \text{▢} \quad \square \quad \text{—} \quad \bullet \\ 4, \quad 0, \quad 9, \quad 7 \\ + \quad 3, \quad 0, \quad 0, \quad 5 \\ \hline \end{array}$$

_____, _____, _____, _____

6

$$\begin{array}{r} \text{▢} \quad \square \quad \text{—} \quad \bullet \\ 0, \quad 4, \quad 2, \quad 3 \\ - \quad 0, \quad 2, \quad 0, \quad 7 \\ \hline \end{array}$$

_____, _____, _____, _____

- 7 Donna ordered 3 **boxes** and 2 **packs** of erasers. Then she realized she didn't have enough money for this order, so she removed 1 **box** and 5 **packs** from her order. What is her new order?

 crates, boxes,

 packs, loose erasers

$$\begin{array}{r} \text{▢} \quad \square \quad \text{—} \quad \bullet \\ 0, \quad 3, \quad 2, \quad 0 \\ - \quad 0, \quad 1, \quad 5, \quad 0 \\ \hline \end{array}$$

_____, _____, _____, _____

- 8 Joel ordered some erasers. His brother ordered **5 packs** and **3 loose erasers**. The total shipment contains **1 box**, **3 packs**, and **7 loose erasers**. What did Joel order?

crates, boxes,

packs, loose erasers



0, 1, 3, 7

— 0, 0, 5, 3

____, ____, ____, ____

9

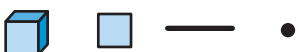


3, 7, 4, 6

+ 6, 1, 5, ____

____, ____, ____, 1

10



2, 0, 5, 3

+ 5, 2, 9, ____

____, ____, ____, 6

11



6, 3, 0, 0

— 3, 1, 5, ____

____, ____, ____, 7

12

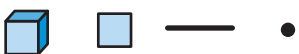


2, 3, 5, ____

— 0, 3, 7, 3

____, ____, ____, 6

13



0, 0, 0, 1

+ 0, 9, 9, 9

____, ____, ____, ____

14



1, 0, 0, 0

— 0, 0, 0, 1

____, ____, ____, ____

15 Challenge



4, 3, 7, 5

— 0, ____, 0, ____

____, 2, ____, 4

16 Challenge



4, 5, 5, 8

+ ____, 7, 5, ____

9, ____, ____, 6

17 Challenge



____, ____, 0, 0

— 4, 1, ____, ____


2, 8, 7, 5

Multiple Shipments


NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.4D, 4.14A

• an eraser



 a box of 10 packs

— a pack of 10 erasers

 a crate of 10 boxes

Find the total shipments.



1

  — •
0, 3, 2, 1

 \times 3

 _____, _____, _____, _____



2

  — •
0, 4, 0, 7

 \times 2

 _____, _____, _____, _____



3

  — •
0, 4, 2, 5

 \times 3

 _____, _____, _____, _____



4

  — •
2, 3, 0, 1

 \times 3

 _____, _____, _____, _____



5

  — •
1, 0, 0, 9

 \times 9

 _____, _____, _____, _____



6

  — •
0, 8, 4, 3

 \times 7

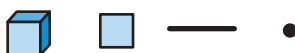








 _____, _____, _____, _____

- 7 Debbie's father ordered erasers for Debbie, Charlie, Abby, and Nick. Each child got **1 box**, **3 packs**, and **5 loose erasers**. What was the total shipment?


  — •
0, 1, 3, 5

 \times 4

 _____, _____, _____, _____

<p>8</p> <div>  </div> <p>0, 2, 3, 1</p> <p>× 7</p> <hr/> <p>____, ____, ____, ____</p>	<p>9</p> <div>  </div> <p>1, 7, 1, 3</p> <p>× 4</p> <hr/> <p>____, ____, ____, ____</p>	<p>10</p> <div>  </div> <p>1, 0, 9, 6</p> <p>× 8</p> <hr/> <p>____, ____, ____, ____</p>
<p>11</p> <div>  </div> <p>____, 0, 5, 8</p> <p>× 3</p> <hr/> <p>9, ____, ____, ____</p>	<p>12</p> <div>  </div> <p>2, ____, 2, 4</p> <p>× 4</p> <hr/> <p>____, 6, ____, ____</p>	<p>13</p> <div>  </div> <p>1, 5, 2, ____</p> <p>× 3</p> <hr/> <p>____, ____, ____, 5</p>
<p>14</p> <div>  </div> <p>2, 1, 3, 2</p> <p>× 4</p> <hr/> <p>____, ____, ____, ____</p>	<p>15</p> <div>  </div> <p>1, 3, 8, 6</p> <p>× ____</p> <hr/> <p>9, ____, 0, 2</p>	<p>16</p> <div>  </div> <p>1, 7, 0, 4</p> <p>× ____</p> <hr/> <p>5, 1, 1, 2</p>

17 Challenge




1, 7, 0, 0

× ____

5, ____, ____, ____

18 Challenge




____, 4, 6, 3

× 6

8, ____, ____, ____

19 Challenge



____, 5, 5, 5

× 4


2, ____, ____, ____

Sharing Shipments


NCTM Standards 1, 2, 6, 7, 8, 9, 10

TEKS 4.3A, 4.4B, 4.4D, 4.4E, 4.14A



• an eraser

 a box of 10 packs

— a pack of 10 erasers



 a crate of 10 boxes

- 1 If 3 students share 6 boxes, 7 packs, and 2 loose erasers, how many boxes, packs, and loose erasers will each student get?

		—	•
0,	2,	—,	—



$$3 \overline{) 0, 6, 7, \boxed{1} 2}$$

- 2 Tim and his two sisters share 2 boxes, 4 packs, and 9 loose erasers. How many boxes, packs, and loose erasers will each of them get?

		—	•
—,	—,	—,	—



$$3 \overline{) 0, 2, \boxed{2} 4, 9}$$

- 3 Four classes share a shipment of 5 boxes and 4 packs of erasers. How many boxes and packs will each class get?

		—	•
—,	—,	—,	—

$$4 \overline{) 0, 5, \boxed{1} 4, \boxed{} 0}$$

- 4 Five friends share 4 boxes and 5 loose erasers. How many boxes and loose erasers will each friend get?

		—	•
—,	—,	—,	—

$$5 \overline{) 0, 0, 4, \boxed{} 5}$$

5

—

•

0,

9,

3,

8

6

—

•

0,

2,

8,

8

7

—

•

2,

1,

8,

0

+

4,

7,

3,

9

—

—

—

—

8

—

•

1,

8,

9,

0

—

0,

3,

—

8

—

—

1,

—

9

—

•

3,

6,

1,

—

+

4,

7,

9,

8

—

—

—

2

10

—

•

0,

3,

7,

8

×

—

5

—

—

—

—

11

—

•

1,

7,

3,

6

×

—

—

—

0,

8

12

—

•

6,

9,

1,

9

—

2,

1,

8,

0

—

—

—

—

13 Challenge

—

•

9,

6,

3,

0

—

5,

4,

—

7

—

—

4,

—

14 Challenge

—

•

1,

—

7,

2

+

0,

7,

3,

9

—

6,

—

—

15 Challenge

—

•

1,

3,

6,

—

×

—

4

—

—

7,


6

Multiplying and Dividing Shipments


NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.4D, 4.4E



• an eraser

 a box of 10 packs

— a pack of 10 erasers



 a crate of 10 boxes

1

  — •



$$\begin{array}{r} \text{---} / \text{---} / \text{---} / \text{---} \\ 3 \overline{) 0, 2, \square, 0, \square, 4} \end{array}$$

2

  — •



$$\begin{array}{r} \text{---} / \text{---} / \text{---} / \text{---} \\ 5 \overline{) 0, 7, \square, 1, \square, 5} \end{array}$$

3

  — •
 2, —, 3, 7



$$\begin{array}{r} \times \\ \hline \text{---}, 5, \text{---}, 8 \end{array}$$

4

  — •
 —, 1, 5, 6



$$\begin{array}{r} \times \\ \hline 9, 4, \text{---}, \text{---} \end{array}$$

5

  — •

$$\begin{array}{r} \text{---} / \text{---} / \text{---} / \text{---} \\ 5 \overline{) 2, \square, 3, \square, 4, \square, 0} \end{array}$$

6

  — •

$$\begin{array}{r} \text{---} / \text{---} / \text{---} / \text{---} \\ 8 \overline{) 3, \square, 2, 2, \square, 4} \end{array}$$

7



$$\begin{array}{r} \text{---}, \text{---}, \text{---}, \text{---} \\ 9 \overline{) 9, 3, 7, 8} \end{array}$$

8



$$\begin{array}{r} \text{---}, \text{---}, \text{---}, \text{---} \\ 7 \overline{) 9, 4, 3, 6} \end{array}$$

9

0, , 8, 5
$$\begin{array}{r} \times 4 \\ \hline \end{array}$$
1, 9, ,

10



1, 0, 3, 7

$$\begin{array}{r} \times \text{---} \\ \hline \end{array}$$
 , 2, 2, 2

11



2, 0, 5, 9

$$\begin{array}{r} \times \text{---} \\ \hline \end{array}$$
8, , ,

12

1, 7, ,

$$\begin{array}{r} \text{---}, \text{---}, \text{---}, \text{---} \\ 5 \overline{) \text{---}, 8, 7, 5} \end{array}$$

13

1, 2, ,

$$\begin{array}{r} \text{---}, \text{---}, \text{---}, \text{---} \\ \text{---} \overline{) 9, 6, 3, 2} \end{array}$$

14 Challenge When the Eraser Store has a very big shipment to prepare, the employees put **10 crates** on a pallet. A customer ordered **3 pallets, 4 crates, 2 boxes, 5 packs, and 4 erasers**. Then the customer decided to divide the shipment into 2 equal halves.

How large should each half be?

Original Order

 , , , ,

Half Order

 , , , ,





Connecting Shipment Records to Place Value

NCTM Standards 1, 2, 6, 7, 8, 9, 10



 TEKS 4.4B, 4.4E

Solve these Eraser Store problems.



1

			—	•
	3,	1	4	8
+	5,	6	9	3
<hr/>				
	—,	—	—	—



2

			—	•
	6,	4	1	9
—	2,	2	3	7
<hr/>				
	—,	—	—	—



3

			—	•
	1,	4	2	6
×				3
<hr/>				
	—,	—	—	—



4

			—	•
<hr/>				
3	3,	7	<input type="text"/>	<input type="text"/>
<hr/>				

5

			—	•
<hr/>				
2	2,	3	<input type="text"/>	<input type="text"/>
<hr/>				

6

			—	•
<hr/>				
10	2,	<input type="text"/>	<input type="text"/>	<input type="text"/>
<hr/>				

7

$$1,650 \div 10 = \underline{\hspace{2cm}}$$

8

$$8,790 \div 10 = \underline{\hspace{2cm}}$$

<p>9</p> <div> <div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> </div> <div> <div>4,</div> <div>0</div> <div>7</div> <div>8</div> </div> <div> <div>+</div> <div>3,</div> <div>8</div> <div>6</div> <div>1</div> </div> <hr/> <div> <div></div>, <div></div> <div></div> <div></div> </div> </div>	<p>10</p> <div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> </div> <div> <div>6,</div> <div>0</div> <div>3</div> <div>4</div> </div> <div> <div>-</div> <div></div> <div>8</div> <div>5</div> <div>7</div> </div> <hr/> <div> <div></div>, <div></div> <div></div> <div></div> </div>	<p>11</p> <div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> </div> <div> <div>1,</div> <div>8</div> <div></div> <div>4</div> </div> <div> <div>×</div> <div></div> <div></div> <div>4</div> </div> <hr/> <div> <div></div>, <div>5</div> <div>3</div> <div></div> </div>
<p>12</p> <div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> </div> <div> <div>8</div> <div>6</div> <div>6</div> </div> <div> <div>×</div> <div></div> <div></div> </div> <hr/> <div> <div></div>, <div></div> <div>3</div> <div>2</div> </div>	<p>13</p> <div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> </div> <div> <div>2,</div> <div>2</div> <div>5</div> <div>8</div> </div> <div> <div>×</div> <div></div> <div></div> <div>3</div> </div> <hr/> <div> <div></div>, <div></div> <div></div> <div></div> </div>	<p>14</p> <div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> </div> <div> <div>2,</div> <div></div> <div>2</div> <div>6</div> </div> <div> <div>×</div> <div></div> <div></div> <div>4</div> </div> <hr/> <div> <div>9,</div> <div>7</div> <div></div> <div></div> </div>
<p>15</p> <div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> </div> <div> <div></div>, <div></div> <div></div> <div></div> </div> <div> <div>4</div> <div>5,</div> <div>5</div> <div>3</div> <div>2</div> </div> <hr/>	<p>16</p> <div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> </div> <div> <div></div>, <div></div> <div></div> <div></div> </div> <div> <div>3</div> <div>1,</div> <div>4</div> <div>4</div> <div>6</div> </div> <hr/>	<p>17</p> <div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> </div> <div> <div></div>, <div></div> <div></div> <div></div> </div> <div> <div>2</div> <div>3,</div> <div>5</div> <div>7</div> <div>8</div> </div> <hr/>



18 Challenge Jake multiplied a number by 2 and got 4,797 for an answer. Was he right? Explain.

Estimating Shipment Orders

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.5B**Match each expression with its best estimate.**

1 $605 + 403$   100

2 $1,742 - 261$   200

3 247×8   500

4 $890 \div 10$   1,000


5 $2,023 \times 2$   1,500

6 $1,407 \div 7$   2,000

7 $1,917 + 3,064$   3,000

8 $5,692 - 2,518$   4,000

9 49×9   5,000

10 $4,987 + 5,062$   10,000

Estimate the answers.

11

$$\begin{array}{r} 6,001 \\ - 2,798 \\ \hline \end{array}$$

____, X X X

12

$$\begin{array}{r} 4,008 \\ \times \quad \quad \quad 8 \\ \hline \end{array}$$

_____, X X X

13

$$\begin{array}{r} \text{_____, X X X} \\ 8 \overline{) 9,464} \end{array}$$

14

$$\begin{array}{r} 84,898 \\ + 12,158 \\ \hline \end{array}$$

_____, X X X

15

$$\begin{array}{r} 25,696 \\ - 3,753 \\ \hline \end{array}$$

_____, X X X

16

$$\begin{array}{r} 56,381 \\ + 49,555 \\ \hline \end{array}$$

_____, X X X

17

$$\begin{array}{r} \text{_____, X X X} \\ 5 \overline{) 5,635} \end{array}$$

18

$$\begin{array}{r} \text{_____, X X} \\ 7 \overline{) 4,074} \end{array}$$

19

$$\begin{array}{r} \text{_____, X X} \\ 9 \overline{) 6,579} \end{array}$$

20 Challenge

$$\begin{array}{r} \text{_____, X X X} \\ \times \quad \quad \quad 6 \\ \hline \end{array}$$

37,926

21 Challenge

$$\begin{array}{r} 13X \\ \text{_____,} \\ 1,179 \end{array}$$

22 Challenge

$$\begin{array}{r} 27,106 \\ - \text{_____, X X X} \\ \hline \end{array}$$

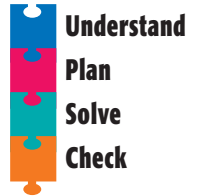
15,627

Problem Solving Strategy

Make a Table

NCTM Standards 1, 2, 6, 7, 8, 9, 10

TEKS 4.3A, 4.4E, 4.14B, 4.14C



- 1 Sedrick ordered erasers from the Eraser Store before the store bought new containers. So, each pack contained 7 erasers, each box contained 7 packs, and each crate contained 7 boxes. He can't remember how many erasers he ordered, but when his order arrived, there were 3 containers and no loose erasers. What are all the possible orders he might have made?

- 2 The Eraser Store now has pencils too! Pencils cost 3¢ each, or 4 for 10¢. Erasers cost 4¢, or 4 for 15¢. There is a limit of 5 pencils and 5 erasers per customer

Alison spent 25¢. What purchases might she have made?

_____ pencils, _____ erasers,
or _____ pencils and _____ erasers,
or _____ pencils and _____ erasers.

Problem Solving Test Prep

Choose the correct answer.

- 1 Lisa started watching a movie at 7:40 P.M. The movie lasted 2 hours 13 minutes. At what time did she finish watching?

A. 8:55 P.M.
B. 9:53 P.M.
C. 10:03 P.M.
D. 10:13 P.M.

- 2 Derrick is making a design using squares and circles. He has 3 different-size squares and 5 different-size circles. If he chooses 1 square and 1 circle, how many pairs can he make?

A. 6
B. 8
C. 12
D. 15

- 3 Which subtraction sentence is equivalent to the one shown?

$$\begin{array}{r} (400 + 20 + 3) \\ - (200 + 80 + 7) \\ \hline \end{array}$$

A. $423 - 280 = 143$
B. $420 - 280 = 140$
C. $423 - 287 = 136$
D. $420 - 287 = 133$

- 4 Which number sentence represents this story?

You have 17 stickers and share them evenly among yourself and 4 friends.

A. $17 \div 5 = 3 \text{ r}2$
B. $17 \div 4 = 4 \text{ r}3$
C. $17 \div 5 = 2 \text{ r}3$
D. $17 \div 4 = 4 \text{ r}1$

Show What You Know

Solve each problem. Explain your answer.

- 5 At the Snack Shop, large drinks cost \$2 and small drinks cost \$1.50. If you want to spend exactly \$14.00 on drinks, what can you order? Explain.

- 6 Jessie has 1-gallon and 3-gallon containers. She wants to measure exactly 2 gallons of water. Explain how she can do it using the least number of pours between containers.

Review/Assessment

NCTM Standards 1, 2, 6, 7, 8, 9, 10

• an eraser

□ a box of 7 packs

— a pack of 7 erasers

▣ a crate of 7 boxes

Find the new number of each type of package. Lessons 1, 2, 4, and 5

1

$$\begin{array}{r}
 \begin{array}{cccc}
 \text{▣} & \text{□} & \text{—} & \bullet \\
 0, & 5, & 6, & 1 \\
 + & 1, & 4, & 3, & 5 \\
 \hline
 & & & & \\
 \hline
 & & & &
 \end{array}
 \end{array}$$

2

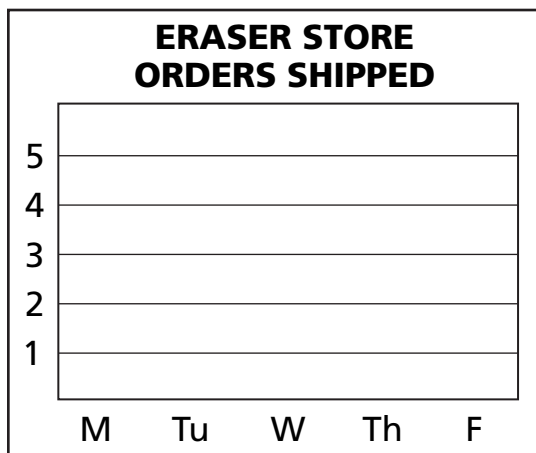
$$\begin{array}{r}
 \begin{array}{cccc}
 \text{▣} & \text{□} & \text{—} & \bullet \\
 2, & 0, & 3, & 5 \\
 + & 0, & 1, & 5, & 2 \\
 \hline
 & & & & \\
 \hline
 & & & &
 \end{array}
 \end{array}$$

3

$$\begin{array}{r}
 \begin{array}{cccc}
 \text{▣} & \text{□} & \text{—} & \bullet \\
 6, & 6, & 5, & 2 \\
 - & 1, & 0, & 4, & 5 \\
 \hline
 & & & & \\
 \hline
 & & & &
 \end{array}
 \end{array}$$

4 Complete the bar graph using the data. Then answer the question. Lesson 3

ORDERS SHIPPED	
Monday	2
Tuesday	4
Wednesday	3
Thursday	1
Friday	5



If 1,000 erasers were shipped in each order, how many more erasers shipped on Friday than on Monday?

_____ more erasers

There are 10 erasers in a pack, 10 packs in a box, and 10 boxes in a crate. [Lessons 6 and 7](#)

- 5 The Eraser Store has run out of crates. Orders must now be shipped in smaller boxes of 500. The Bell School ordered 2 crates, 6 boxes, 1 pack, and 5 loose erasers. Mr. Z’s class ordered 1 crate, 4 boxes, 9 packs, and 4 loose erasers. How many boxes of 500 will you need to ship the order?
- _____ smaller boxes of 500

Find the missing numbers. [Lessons 8 and 9](#)

6

2	2,	4	0	1
×				4
<hr/>				
___	9	6	___	___

7

	2	0	1		
___		1,	0	0	5
<hr/>					

8

	3,	4	2	2
×				___
<hr/>				
1	___,	___	6	6

- 9 Devon is ordering prizes for the school carnival. She needs about 4 prizes per student. If there are about 1,089 students in her school, about how many prizes does Devon need? Explain how you found your answer. [Lesson 10](#)
- _____
- _____

- 10 Doug works at the Eraser Store. The table at the right shows the orders he has received from three different grade levels at Highland Elementary School. He wants to package the orders into one shipment. What is the fewest number of packages he can ship? [Lesson 11](#)
- _____

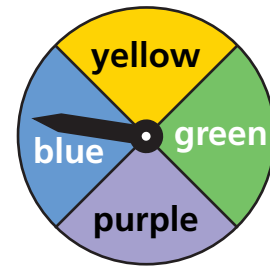
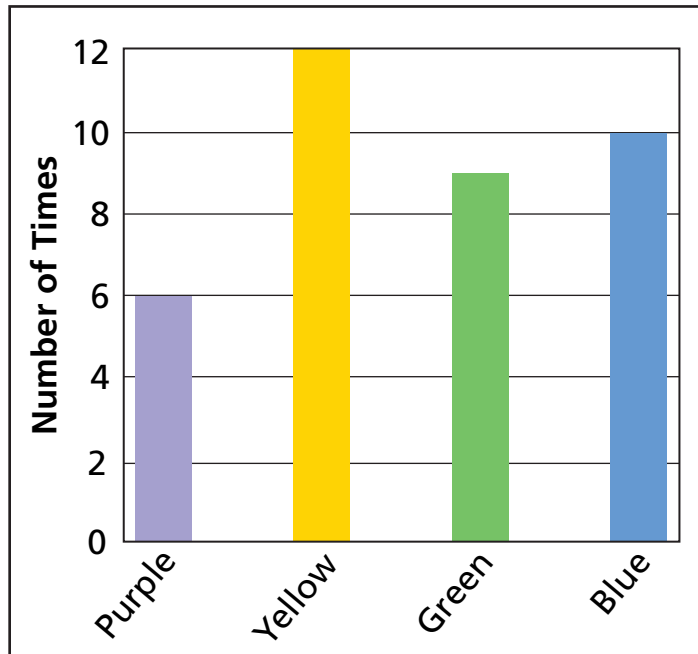
Grade	Erasers
3	689
4	752
5	587

Introducing Angles

NCTM Standards 1, 2, 3, 6, 7, 8, 9, 10

 TEKS 4.13B, 4.15A

A group made a graph of their 4-person spinner game.



1 Which color won the game? _____

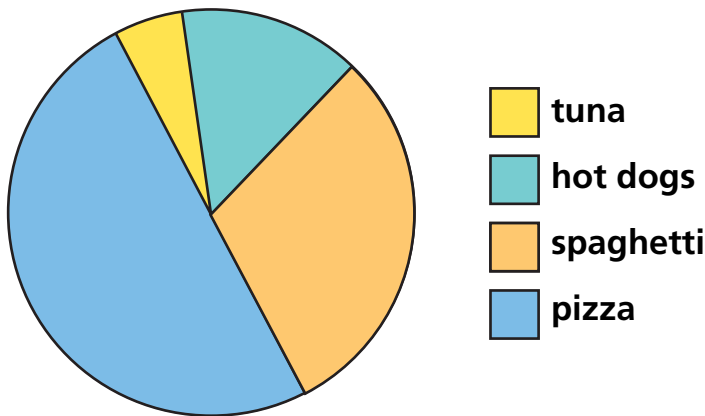
2 How many times did the spinner stop on green? _____

3 If purple and yellow were a team, and blue and green were a team, which team won?

4 The spinner stopped on yellow _____ more times than on green.

5 How many times did this group spin the spinner? _____

The students at Jefferson School were asked about their favorite school lunches.



Write if the statement is *true* or *false*.

- 6

About half of the students chose pizza.

- 7

More students chose pizza than hot dogs and spaghetti put together.

- 8


No one liked tuna.

- 9

Hot dogs were less popular than spaghetti.

- 10

About half as many students chose tuna as chose pizza.



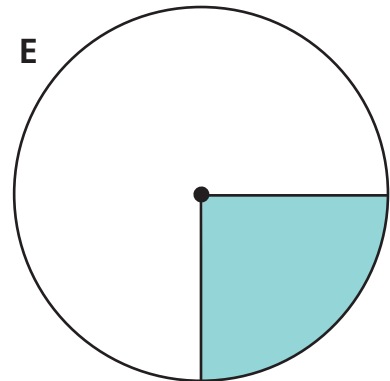
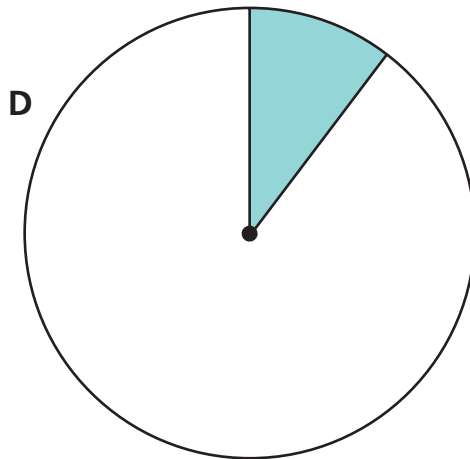
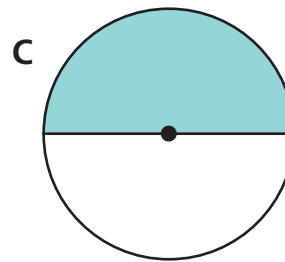
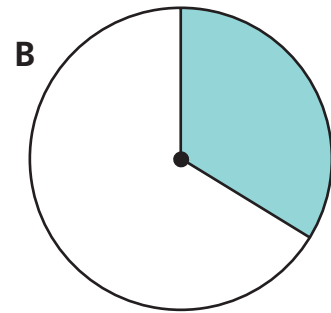
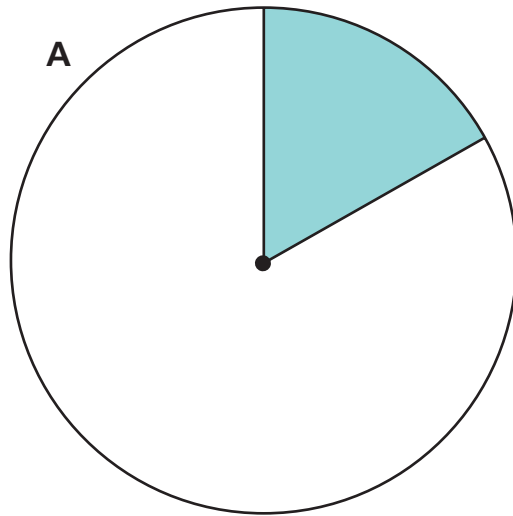
11

Challenge If you created a spinner that looked like the pie chart above, would it be a fair spinner? Why or why not? Use pictures, numbers, or words to explain your answer.

Classifying Angles

NCTM Standards 3, 4, 6, 7, 8, 9, 10

TEKS 4.8A



You can choose which spinner base to play with. If the spinner lands on the shaded part of a base, you win.

- 1 Which spinner base gives you the best chance of winning?

spinner base _____

- 2 Which spinner base gives you the worst chance of winning?

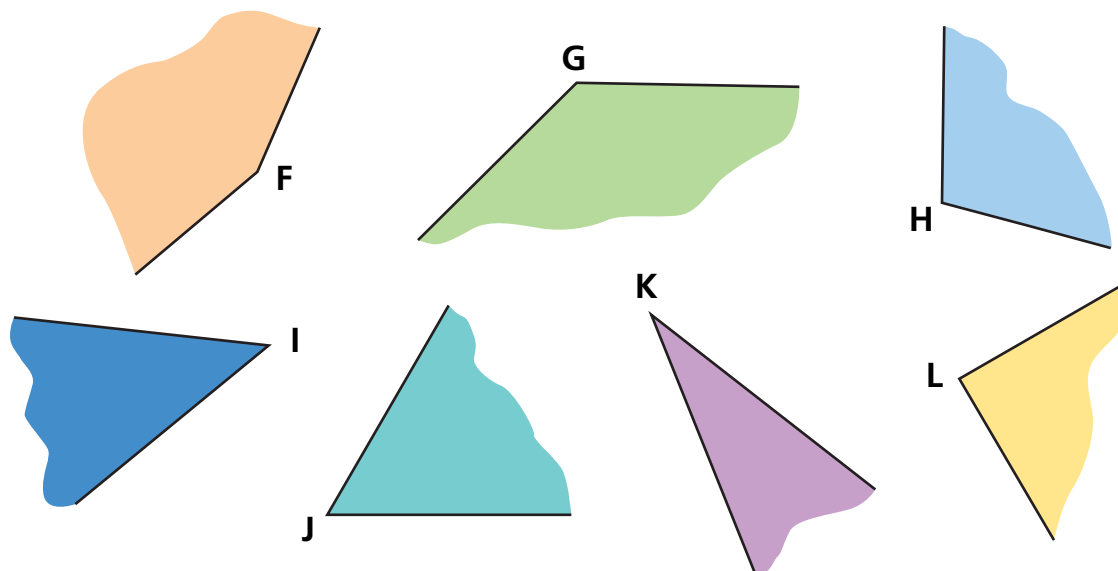
spinner base _____

- 3 Order the spinner bases from best to worst chance of winning.

_____, _____, _____, _____, _____

4 Order the angles from the smallest to the largest.

_____, _____, _____, _____, _____, _____, _____



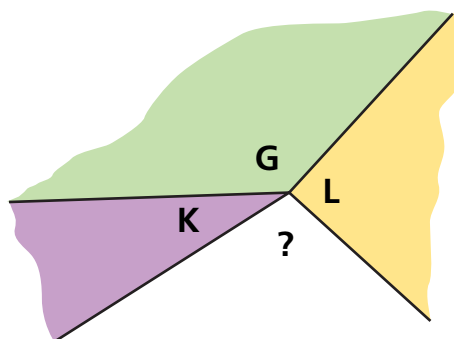
5 **Challenge** Compare each angle to a right angle.

Which angles are less than a right angle? _____, _____, _____

Which angle is equal to a right angle? _____

Which angles are greater than a right angle? _____, _____, _____

6 **Challenge** Angle _____ would fit in the empty space.

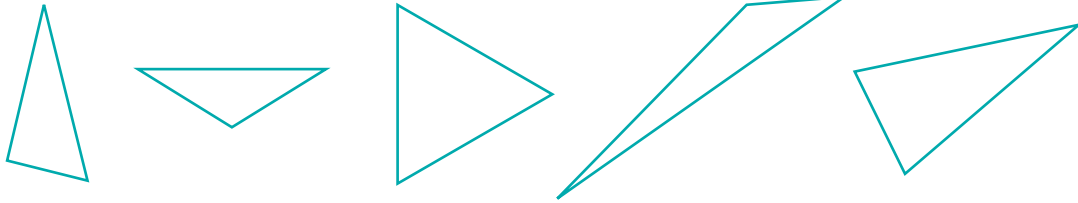


Classifying Triangles by Angles

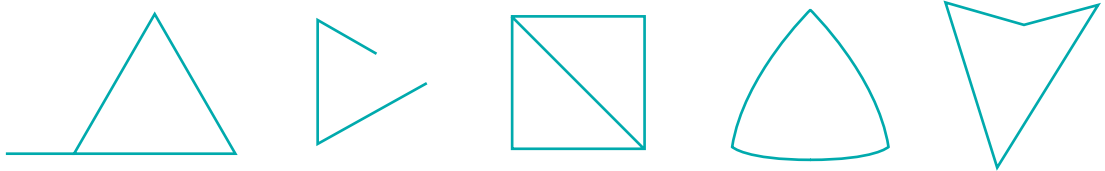
NCTM Standards 3, 4, 6, 7, 8, 9, 10

 TEKS 4.8A, 4.8C, 4.15A

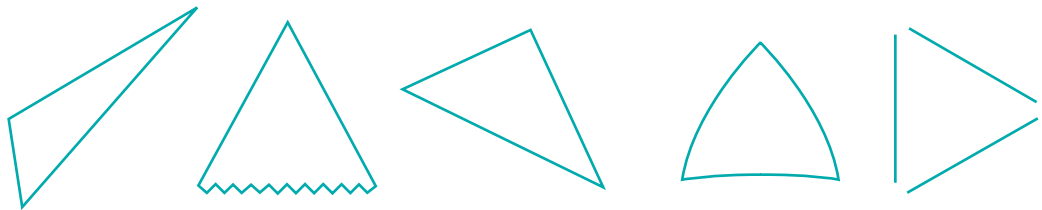
These are triangles.



These are not triangles.



1 Which of these are triangles? Circle the triangles.

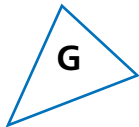
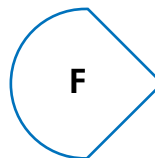
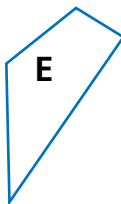
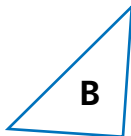
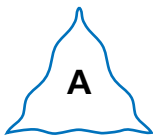


2 Draw a triangle that is different from the others on the page.



3 Describe a triangle in your own words.

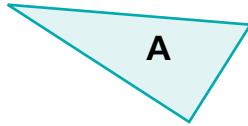
- 4 Circle the triangles and label them *acute*, *right*, or *obtuse*.



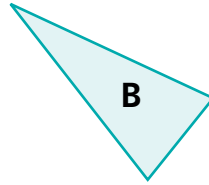
- 5 **Challenge** What are the similarities and differences of acute, right, and obtuse triangles?

Classifying Triangles by Side Length

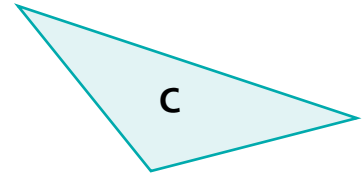
NCTM Standards 3, 4, 6, 7, 8, 9, 10

 TEKS 4.8C, 4.14D, 4.15A


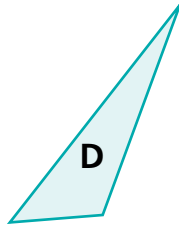
right and scalene



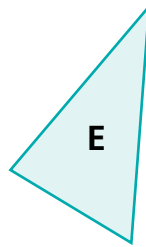
acute and isosceles



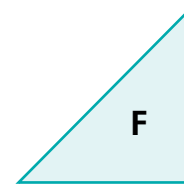
obtuse and isosceles



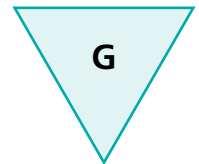
obtuse and scalene



acute and scalene



right and isosceles



equilateral

- 1 I have 2 sides that are the same length and 1 right angle.

I am triangle _____.

- 2 All of my sides are the same length. All of my angles are the same.

I am triangle _____.

- 3 I have exactly 2 sides that are the same length and 3 acute angles.

I am triangle _____.

- 4 I have no equal sides. All of my angles are acute.

I am triangle _____.

- 5 All of my sides are different lengths. I have an obtuse angle.

I am triangle _____.

- 6 Two of my sides are the same length. One of my angles is greater than a right angle.

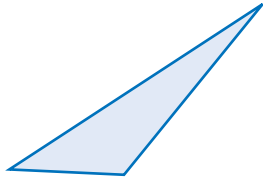
I am triangle _____.

Use a ruler and the corner of a piece of paper to help label each triangle with the 2 names that best describe it:

a. *acute, right, or obtuse*; and

b. *scalene, isosceles, or equilateral*.

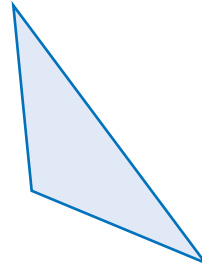
7



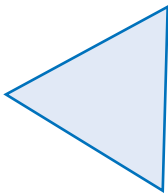
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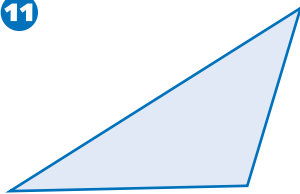
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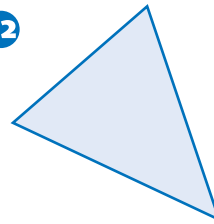
10



11



12





13 Challenge Draw a triangle and write clues to describe it. You might write about the number of equal sides, or the name of each angle.

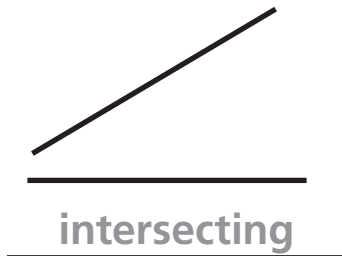
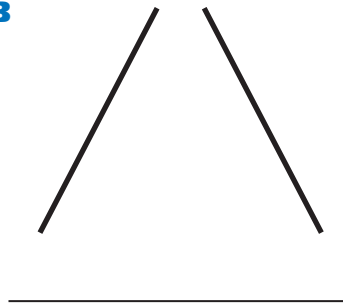
Introducing Perpendicular and Parallel Lines

NCTM Standards 3, 6, 7, 8, 9, 10

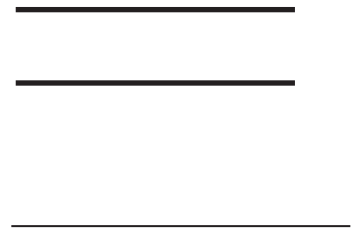
 TEKS 4.8B, 4.15A

- 1** Imagine that the lines go on forever. Are they **intersecting** or are they **parallel**? If the lines are **perpendicular**, circle them.

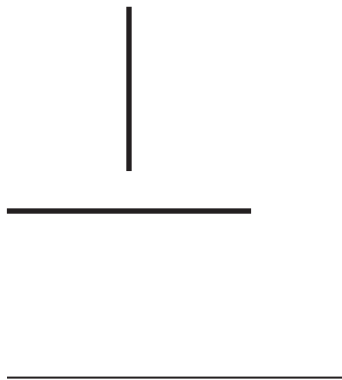
A

**B**

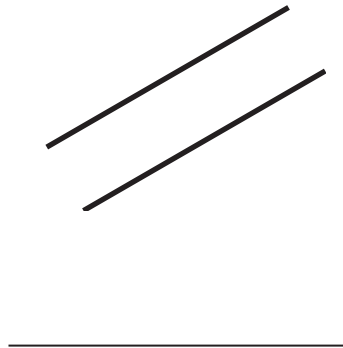
C



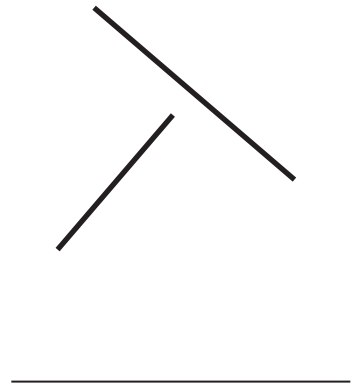
D



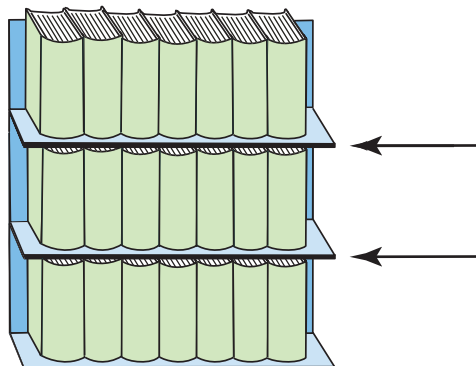
E



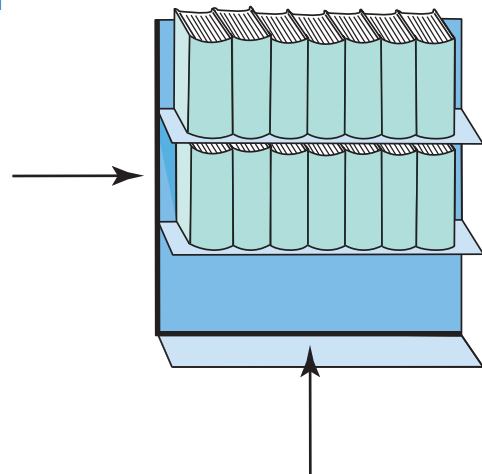
F



G

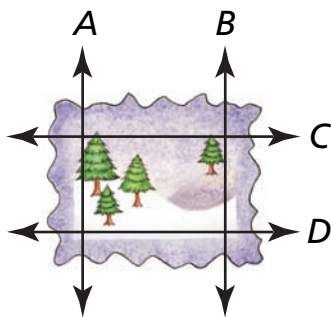


H



- 2 Identify the **parallel** and **perpendicular** lines in the figures.
If there are no more, put an "x" on the answer line.

A



Parallel: _____ and _____

_____ and _____

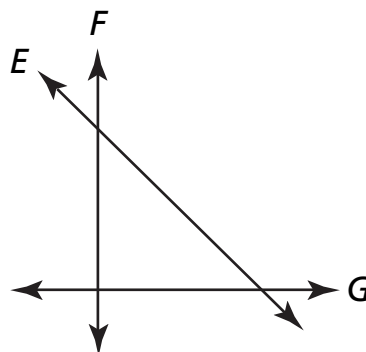
Perpendicular: _____ and _____

_____ and _____

_____ and _____

_____ and _____

B



Parallel: _____ and _____

_____ and _____

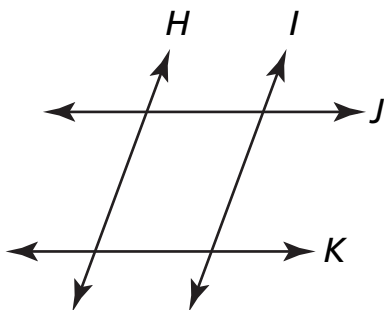
Perpendicular: _____ and _____

_____ and _____

_____ and _____

_____ and _____

C



Parallel: _____ and _____

_____ and _____

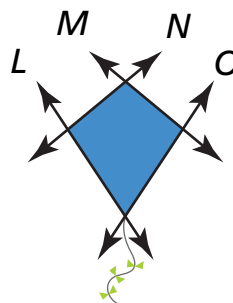
Perpendicular: _____ and _____

_____ and _____

_____ and _____

_____ and _____

D Challenge



Parallel: _____ and _____

_____ and _____

Perpendicular: _____ and _____

_____ and _____

_____ and _____

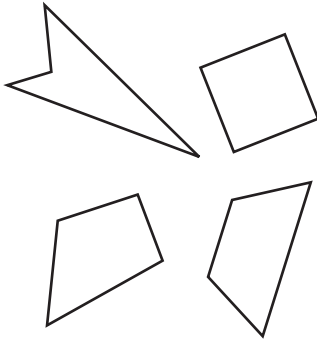
_____ and _____

Classifying Quadrilaterals by the Number of Parallel Sides

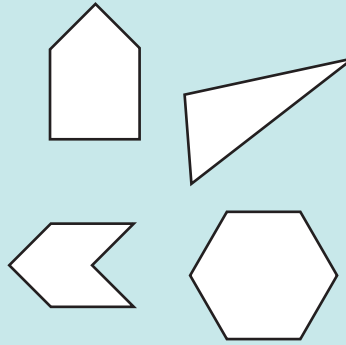
NCTM Standards 3, 6, 7, 8, 9, 10

 TEKS 4.8C, 4.15A

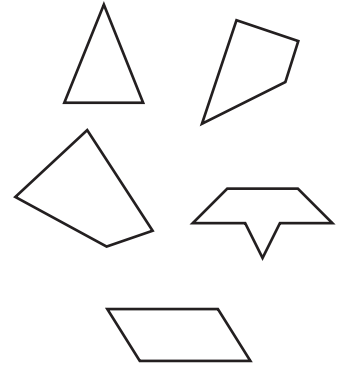
1 All of these belong.



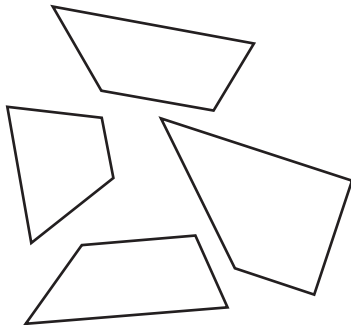
None of these belong.



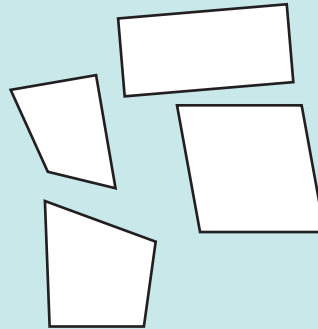
Which of these belong?



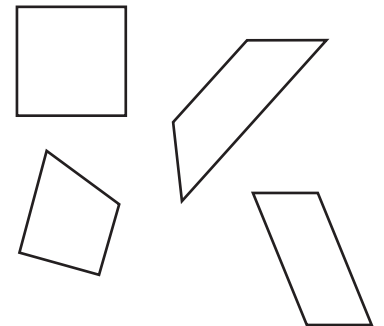
2 All of these belong.



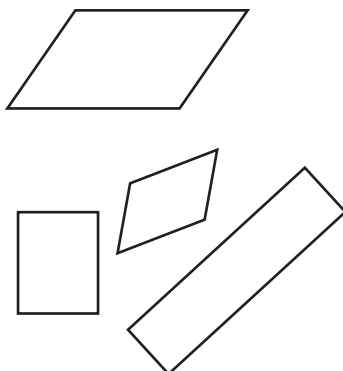
None of these belong.



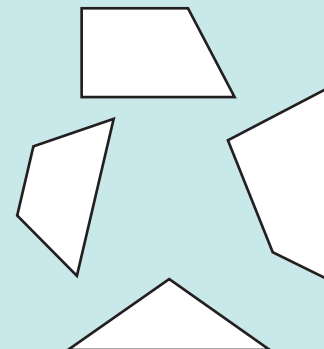
Which of these belong?



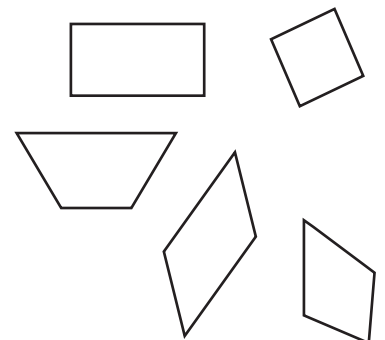
3 All of these belong.



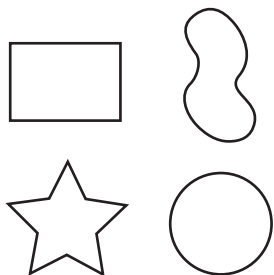
None of these belong.



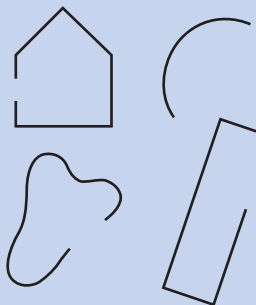
Which of these belong?



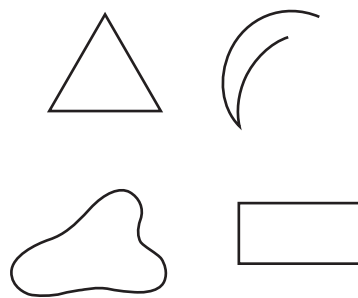
4 All of these belong.



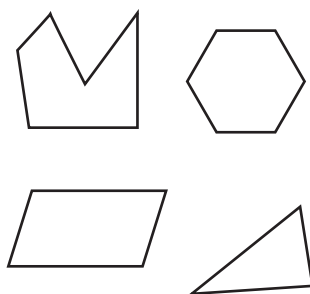
None of these belong.



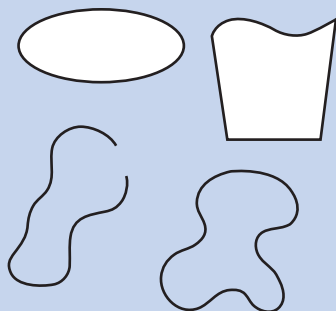
Which of these belong?



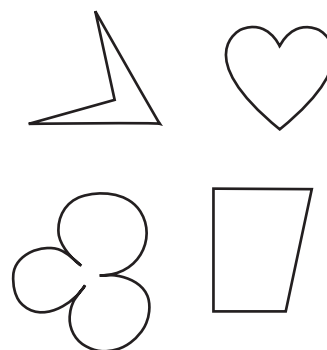
5 All of these belong.



None of these belong.



Which of these belong?



6 **Challenge** What do the figures that belong in Problem 4 have in common? Use pictures, numbers, or words to explain your answer.

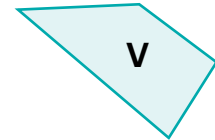
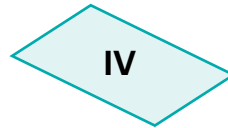
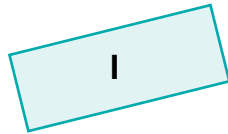
7 **Challenge** What do the figures that belong in Problem 5 have in common? Use pictures, numbers, or words to explain your answer.

Classifying Parallelograms

NCTM Standards 3, 6, 7, 8, 9, 10

 TEKS 4.8C, 4.15A

Each figure has at least one of these names:
parallelogram, rectangle, rhombus, square, trapezoid.



- 1 I have exactly one pair of parallel sides.

I am quadrilateral _____.

I am a _____.

- 2 All of my sides are equal. All of my angles are equal.

I am quadrilateral _____.

I am a _____.

- 3 I have 2 pairs of parallel sides.

I am quadrilateral _____, _____,
 _____ or _____.

I am a _____.

I am sometimes a _____,

a _____ or a _____.

- 4 All of my sides are the same length.

I am quadrilateral _____ or _____.

I am a _____.

I am sometimes a _____.

- 5 I have 2 pairs of parallel sides. I have at least one right angle.

I am quadrilateral _____ or _____.

I am a _____.

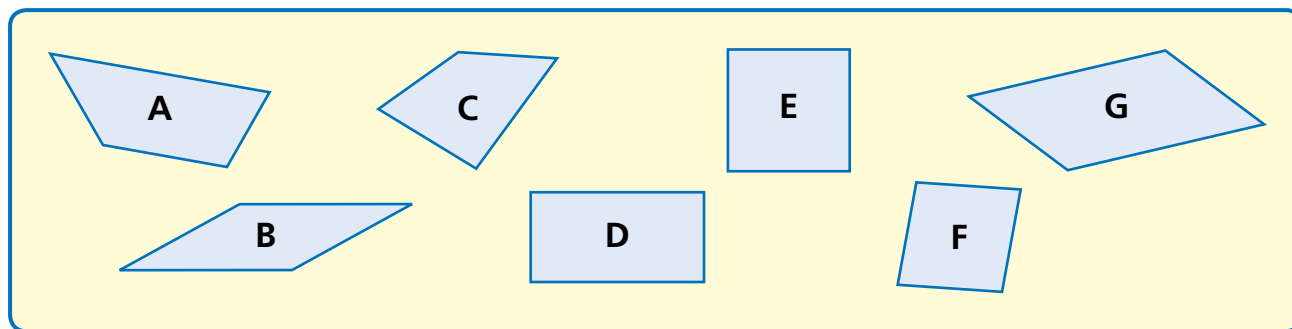
I am sometimes a _____.

- 6 I have more than 1 pair of parallel sides. My sides are not all the same length.

I am quadrilateral _____ or _____.

I am a _____.

I am sometimes a _____.



7 List all:

- | | |
|-------------------------------|---------------------------|
| A quadrilaterals _____ | D rhombuses _____ |
| B trapezoids _____ | E rectangles _____ |
| C parallelograms _____ | F squares _____ |

Write whether the statement is *true* or *false*.

- | | |
|---|-------------|
| 8 Some quadrilaterals are parallelograms. | <u>true</u> |
| 9 All squares are parallelograms. | _____ |
| 10 All parallelograms are squares. | _____ |
| 11 All squares are rectangles. | _____ |
| 12 All rectangles are squares. | _____ |
| 13 All parallelograms are rectangles. | _____ |
| 14 All quadrilaterals are either trapezoids or parallelograms. | _____ |

Challenge

- | | |
|--|-------|
| 15 Some rhombuses are rectangles. | _____ |
| 16 Some squares are trapezoids. | _____ |
| 17 All squares are rhombuses. | _____ |

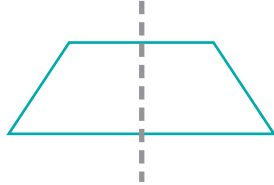
Symmetry in Triangles and Quadrilaterals

NCTM Standards 3, 6, 7, 8, 9, 10

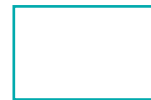
 TEKS 4.8C, 4.9C

Sketch any lines of symmetry for these figures.

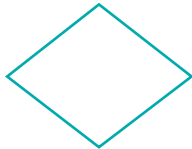
1


 line(s) of symmetry

2


 line(s) of symmetry

3

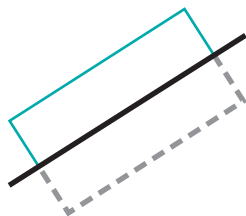

 line(s) of symmetry

4

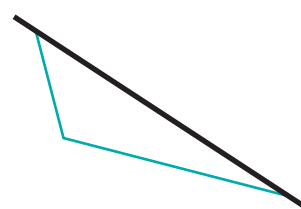

 line(s) of symmetry

Complete each figure by reflecting across the line of symmetry.

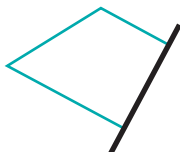
5



6

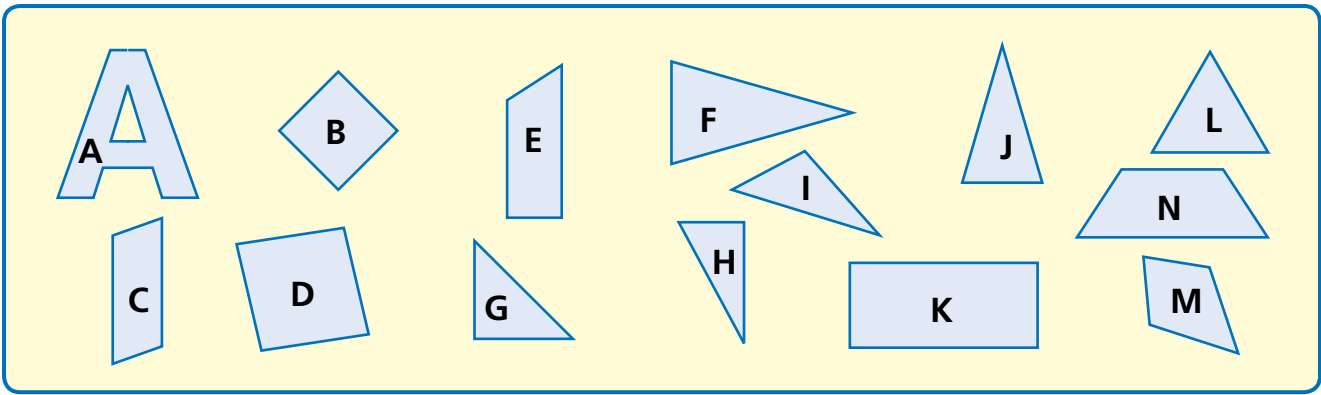


7



8





Draw the lines of symmetry for each figure and list all figures with:

- 9 no lines of symmetry _____
- 10 exactly 1 line of symmetry _____
- 11 exactly 2 lines of symmetry _____
- 12 exactly 3 lines of symmetry _____
- 13 more than 3 lines of symmetry _____

Write whether the statement is *true* or *false*.

- 14 If a quadrilateral has exactly 1 line of symmetry, it is a rectangle. _____
- 15 If a triangle has more than 1 line of symmetry, it's equilateral. _____
- 16 If a triangle has 0 lines of symmetry, it's scalene. _____

Challenge

- 17 If a figure has exactly 2 lines of symmetry, it's not a triangle. _____
- 18 If a figure has exactly 3 lines of symmetry, it's not a quadrilateral. _____
- 19 A rhombus has more lines of symmetry than any other quadrilateral. _____

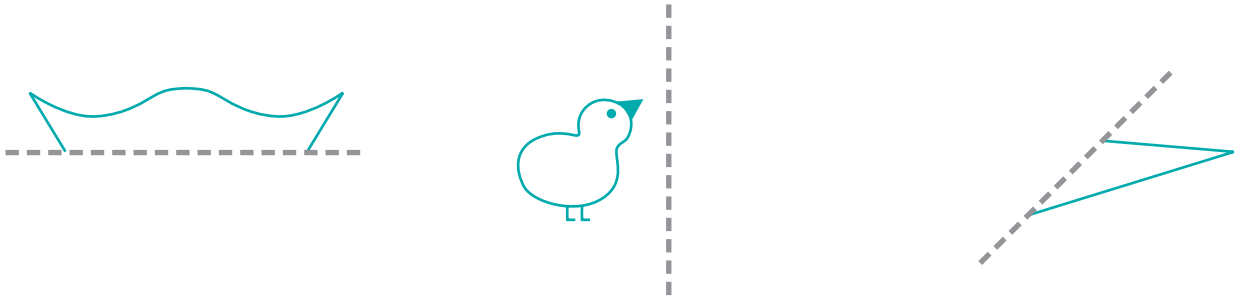
Working with Transformations

NCTM Standards 3, 6, 7, 8, 9, 10

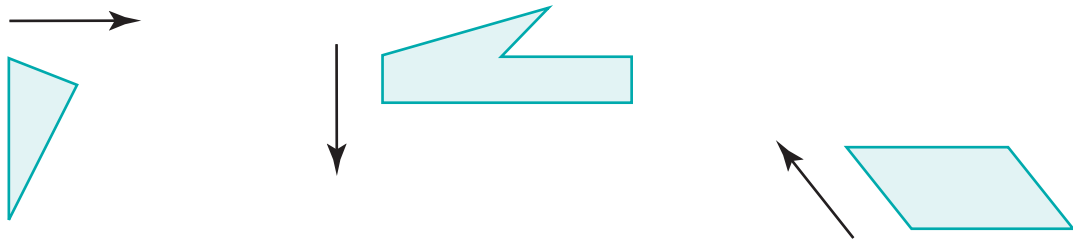
TEKS 4.9A, 4.9B

Perform each transformation.

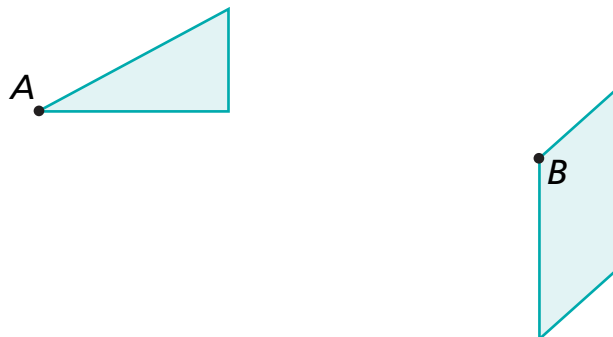
- 1 Reflect across the dotted line.



- 2 Translate in the direction of the arrow so that the resulting figure does not overlap with the original.

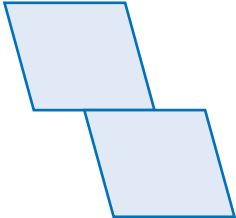
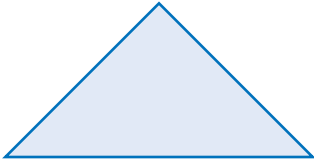
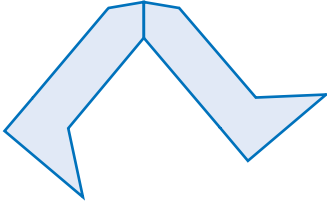
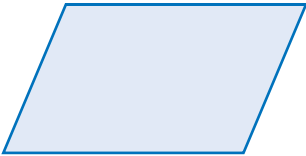
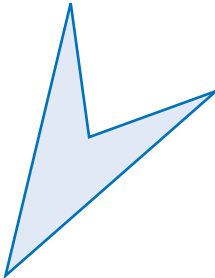
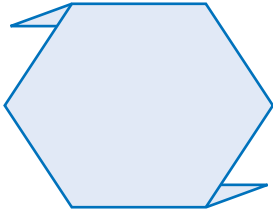


- 3 Rotate around the labeled point so that the resulting figure does not overlap with the original.



Show how to cut each figure into two congruent pieces.

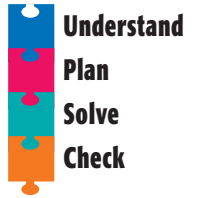
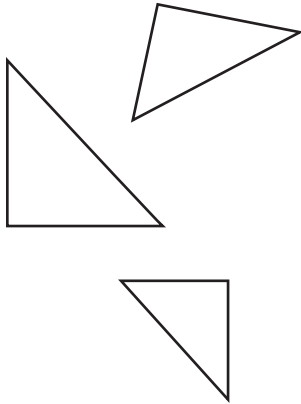
Explain why the two pieces in each figure are congruent by circling all the terms that describe the transformation.

<div>4</div> <div></div> <div>Rotation Reflection Translation</div>	<div>5</div> <div></div> <div>Rotation Reflection Translation</div>	<div>6</div> <div></div> <div>Rotation Reflection Translation</div>
<div>7</div> <div></div> <div>Rotation Reflection Translation</div>	<div>8</div> <div></div> <div>Rotation Reflection Translation</div>	<div>9 Challenge</div> <div></div> <div>Rotation Reflection Translation</div>

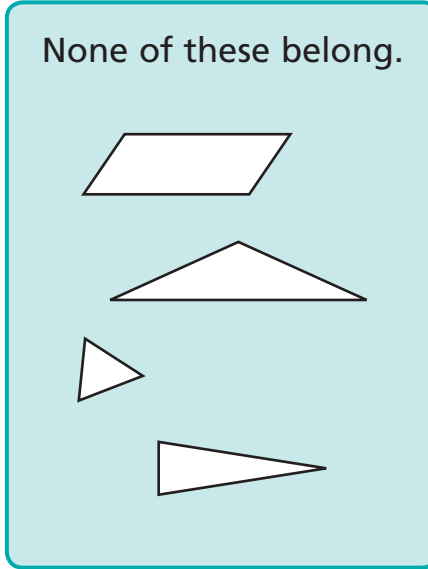
Problem Solving Strategy**Look for a Pattern**

NCTM Standards 3, 6, 7, 8, 9, 10

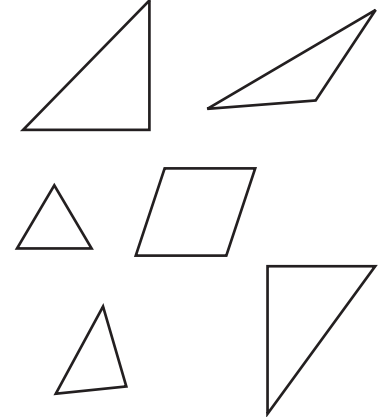
TEKS 4.2A, 4.3A, 4.4D, 4.8C, 4.14A, 4.14B, 4.14C, 4.15A, 4.16A

**1** All of these belong.

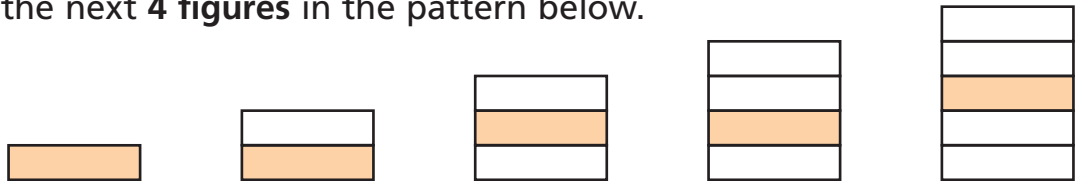
None of these belong.



Circle the ones that belong.



What is the same about all of the figures that belong?

2 Draw the next 4 figures in the pattern below.**3** Describe this pattern and fill in the missing number:
1, 3, 9, _____, 81, 243. Explain.

Problem Solving Test Prep

Choose the correct answer.

- 1 The Wu family bought 2 adult, 1 child, and 3 student tickets.

AMUSEMENT PARK	
Ticket	Price
Adult	\$11.95
Student	\$10.50
Child (under 6)	\$8.25

If they gave the cashier \$100.00, how much change did they receive?

- A. \$35.35

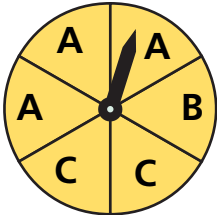
C. \$44.60
- B. \$36.35

D. \$63.65
- 2 Cassie had 150 invitations to send. She sent 55 on Monday and 42 on Tuesday. How many invitations does Cassie still have to send?
- A. 53

C. 108
- B. 95

D. 247

- 3 Which fraction represents the part of the spinner labeled B?



- A. $\frac{0}{6}$

C. $\frac{2}{6}$
- B. $\frac{1}{6}$

D. $\frac{3}{6}$
- 4 The electronics store received 8 large boxes of batteries. Each large box had 16 small boxes in it. Each small box had 6 batteries in it. How many batteries did the store receive?
- A. 30 batteries

C. 128 batteries
- B. 96 batteries

D. 768 batteries

Show What You Know

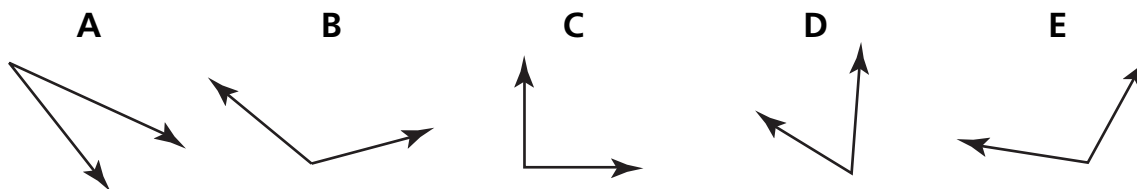
Solve each problem. Explain your answer.

- 5 Mike’s family bought 147 tickets for fair rides. Each ride takes 3 tickets. Do they have enough tickets to ride 50 rides? Explain.

- 6 What is the next figure in the pattern? Explain.



Use the angles to answer the questions. **Lesson 2**



1 Order the angles from the largest to the smallest. _____, _____, _____, _____, _____

2 Compare each angle to a right angle.

Which angles are acute angles?

_____, _____

Which angle is a right angle?

Which angles are obtuse angles?

_____, _____

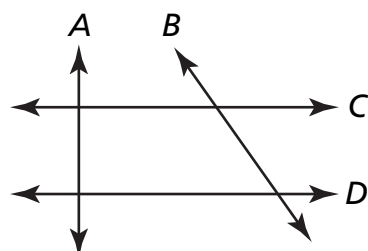
Label each triangle as *acute*, *right*, or *obtuse*, and *scalene*, *isosceles*, or *equilateral*. **Lesson 4**







6 Identify the parallel and perpendicular lines in the figure.



Parallel:

_____ and _____

_____ and _____

Perpendicular:

_____ and _____


_____ and _____

List all names for each figure: *parallelogram, rectangle, rhombus, square, or trapezoid.* Lesson 6

7



8



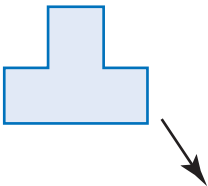
Write whether the statement is *true* or *false*. Lesson 8

9 If a triangle has exactly 1 line of symmetry, it is isosceles.

10 If a quadrilateral has exactly 4 lines of symmetry, it is a square.

Perform each transformation. Lesson 9

11 Translate in the direction of the arrow so that the resulting figure does not overlap with the original.

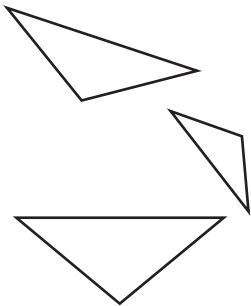


12 Reflect across the dotted line.

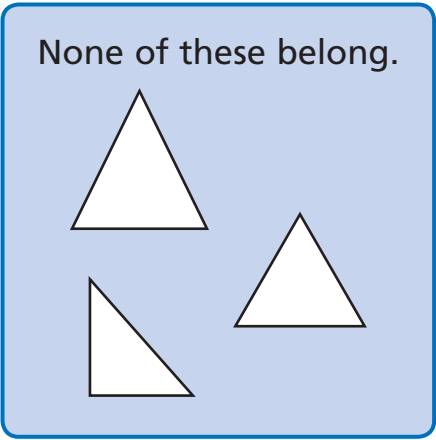


Solve the problem. Lesson 10

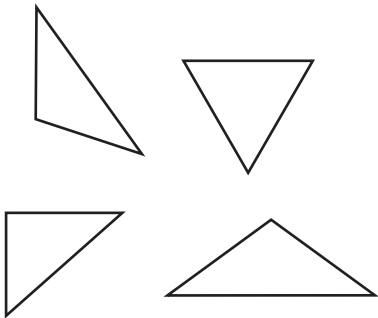
13 All of these belong.



None of these belong.



Circle the ones that belong.



Introducing Area

NCTM Standards 1, 2, 6, 7, 8, 9, 10

TEKS 4.16B

Find the area of each figure. How many square units is it?

 = one square unit

1



Area: 1

2

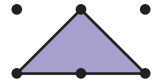
Area: $\frac{1}{2}$

3



Area: _____

4



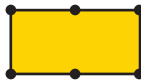
Area: _____

5



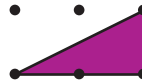
Area: _____

6



Area: _____

7



Area: _____

8



Area: _____

9



Area: _____

10



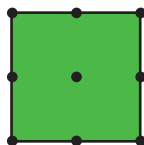
Area: _____

11



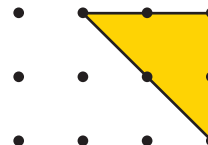
Area: _____

12



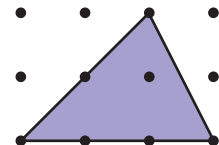
Area: _____

13



Area: _____

14




Area: _____

Find the area of each figure. How many square units is it?

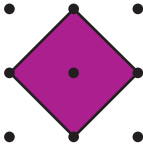

 = one square unit

15



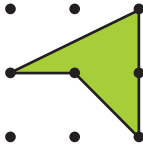
Area:

16



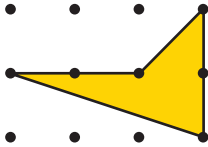
Area:

17




Area:

18




Area:

19



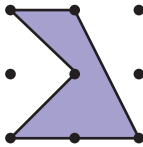
Area:

20



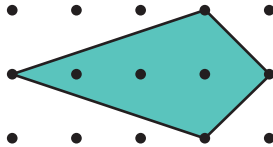
Area:

21




Area:

22



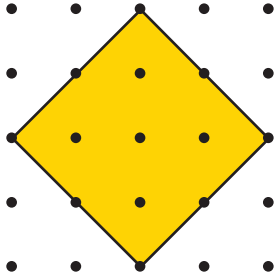
Area:



23

Challenge

Explain how you found the area.



Area:

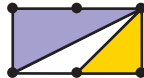
24

Challenge

Use the diagram to find each area.

Purple area White area

Yellow area Total area



Assembling Congruent Figures to Find Area

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.9A, 4.9B, 4.14A, 4.16B

- 1 Quinlan's Quilt Shop makes quilts using pieces like these. Find the area of each piece in square units.



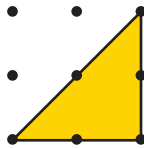
= one square unit

Piece W



Area:

Piece X



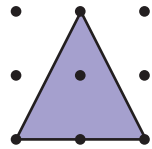
Area:

Piece Y



Area:

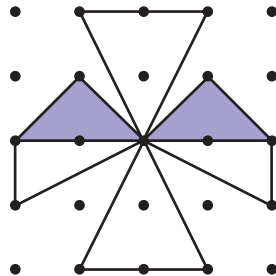
Piece Z



Area:

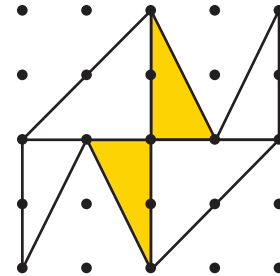
Find the area of these quilt designs in square units.

2



Area:

3



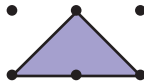
Area:

- 4 In Problem 2, would you **reflect**, **rotate**, or **translate** the left shaded piece to get the right shaded piece?
- _____

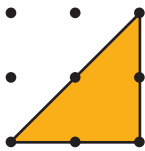
- 5 In Problem 3, would you **reflect**, **rotate**, or **translate** the upper shaded piece to get the lower shaded piece?
- _____

Use the quilt pieces for Problems 6–7.

Piece W



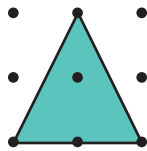
Piece X



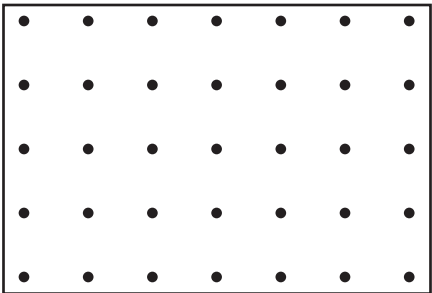
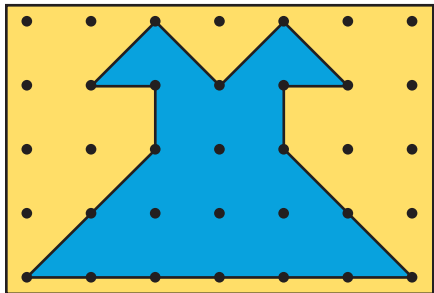
Piece Y



Piece Z



- 6 Quinlan’s Quilt Shop sells the quilt shown at the right. On the blank grid, draw a figure congruent to the blue design and show how to make it using the 4 triangular pieces above.



- 7 What is the area of the blue design? Explain how you found the answer.

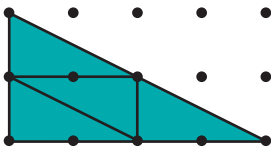
- 8 **Challenge** Quinlan’s Quilt Shop makes triangular quilts in different sizes. What is the area of each of these quilts?



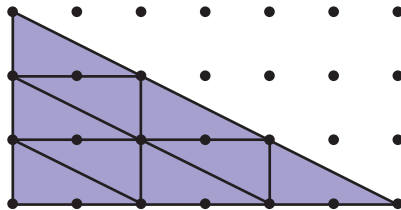
= one square unit



Area:



Area:



Area:

What would the area of the next largest quilt be?

Area:

Using Known Areas to Find Unknown Areas

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.3A, 4.9B, 4.14C, 4.14D

Find the area of each region.



has an area of one square unit.

1



blue area	$\frac{1}{2}$
yellow area	
white area	
Total Area	1

2



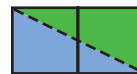
yellow area	
blue area	
white area	
Total Area	

3



light blue area	
green area	
white area	
Total Area	

4



light blue area	
green area	
white area	
Total Area	

5



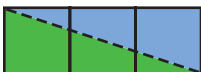
yellow area	
blue area	
white area	
Total Area	

6



yellow area	
blue area	
white area	
Total Area	

7




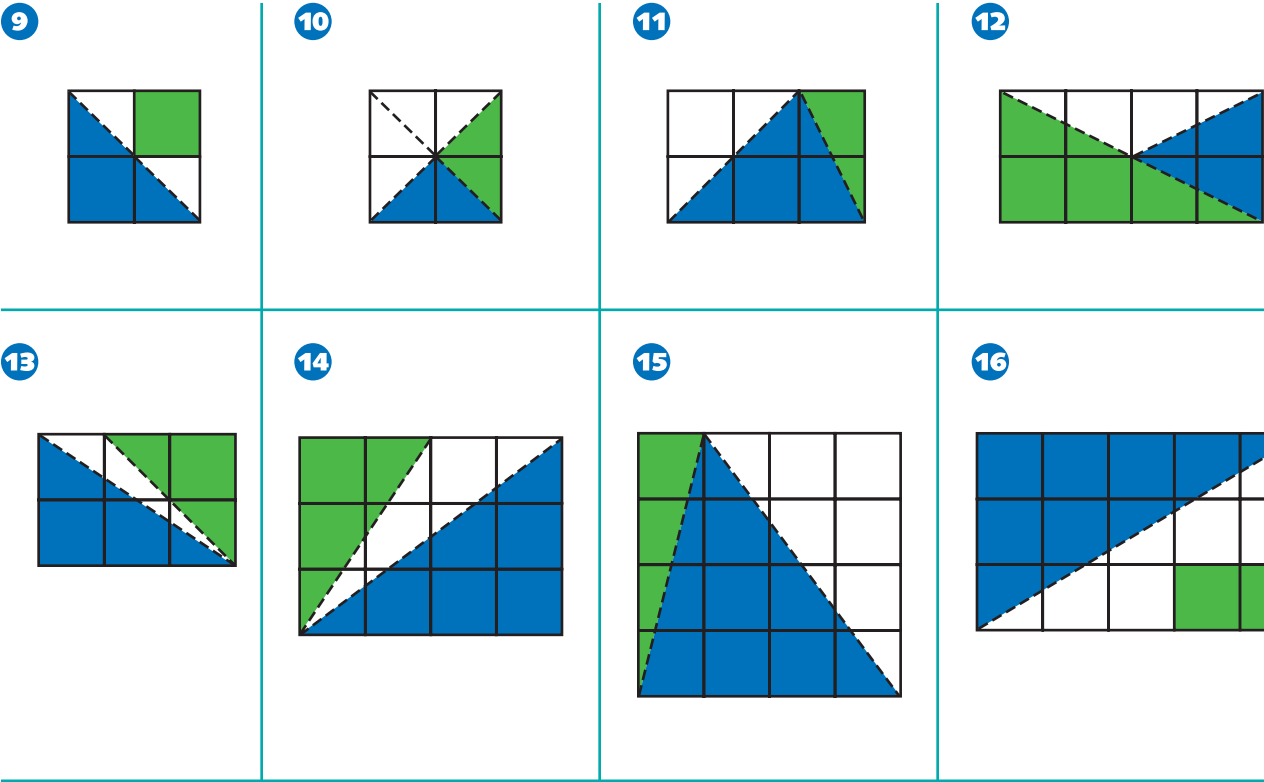
light blue area	
green area	
white area	
Total Area	

8



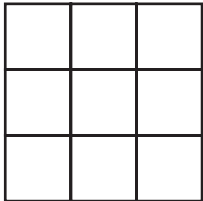
light blue area	
green area	
white area	
Total Area	

Find the area of each region.
 has an area of one square unit.



	9	10	11	12	13	14	15	16
blue area								
green area								
white area								
Total								

13 Challenge Color the grid to match the table.



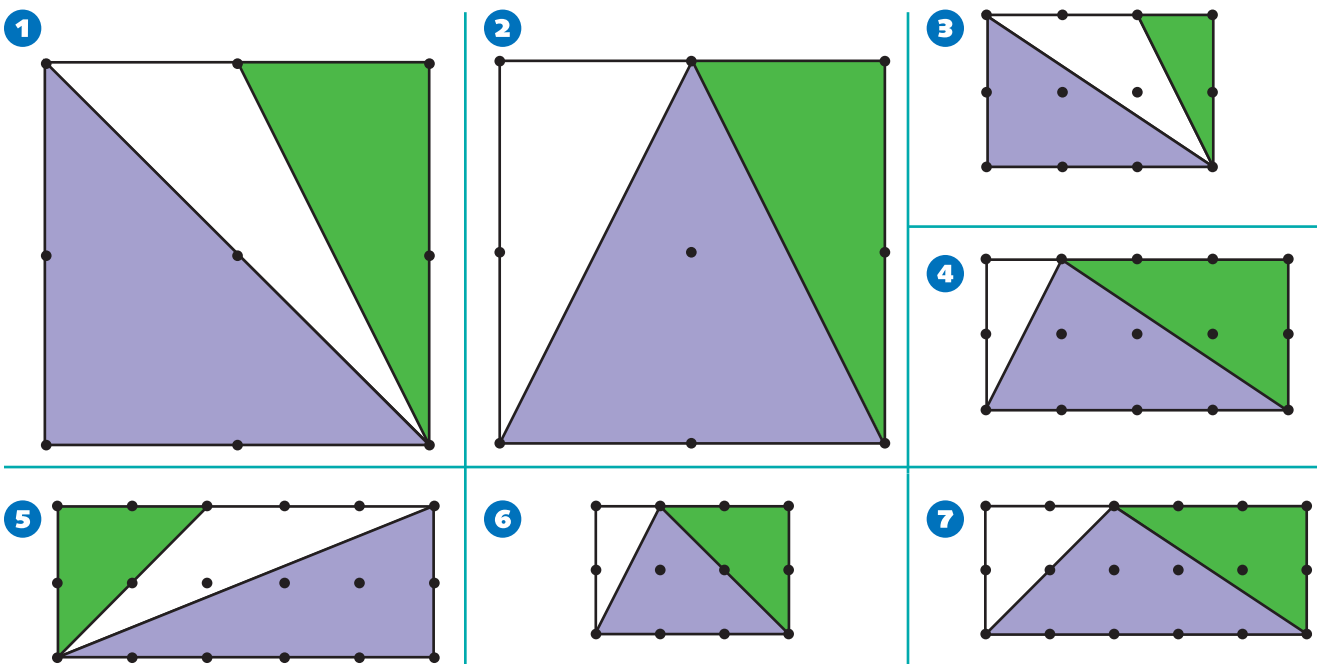
lighter shaded area	$1\frac{1}{2}$
darker shaded area	$4\frac{1}{2}$
white area	3
Total Area	9

Introducing Standard Units for Measuring Area

NCTM Standards 1, 2, 6, 7, 8, 9, 10

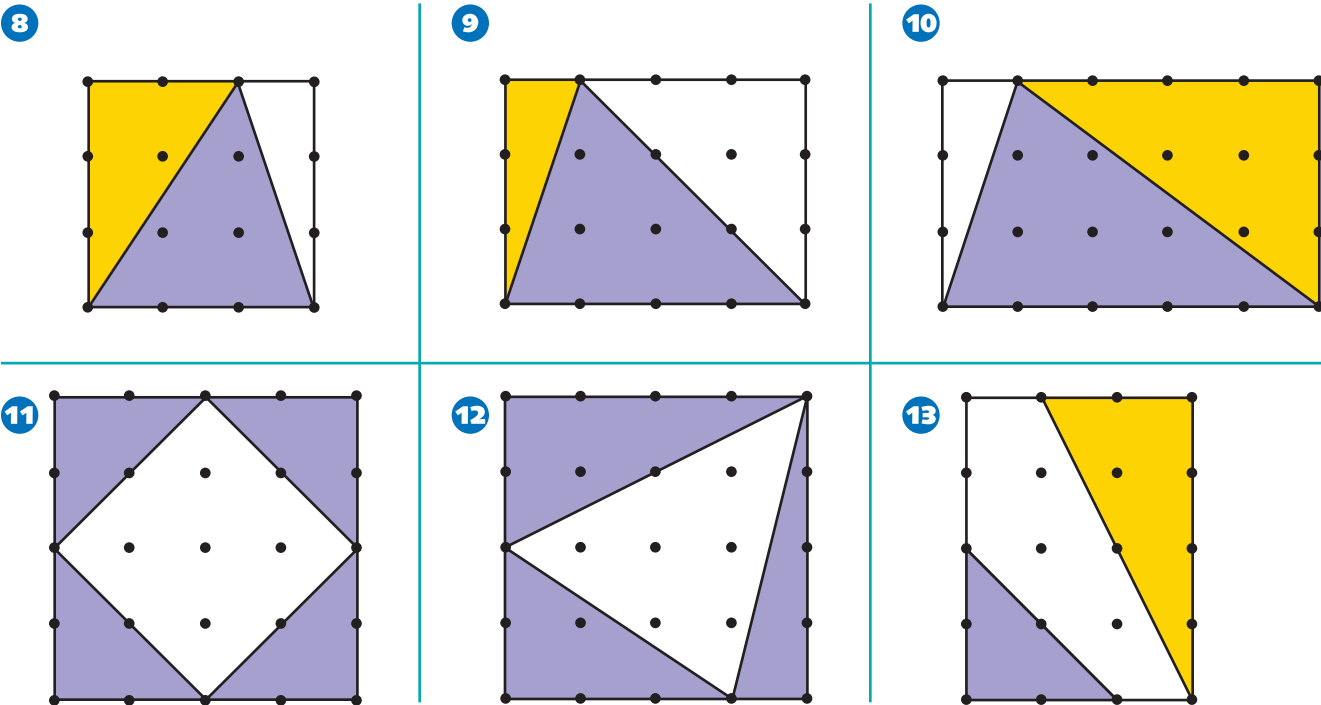
 TEKS 4.9B, 4.11A

Measure to find whether the unit of area for each figure is square inches, square centimeters, or neither. Then find the area of each region. Circle the correct area unit for each figure.



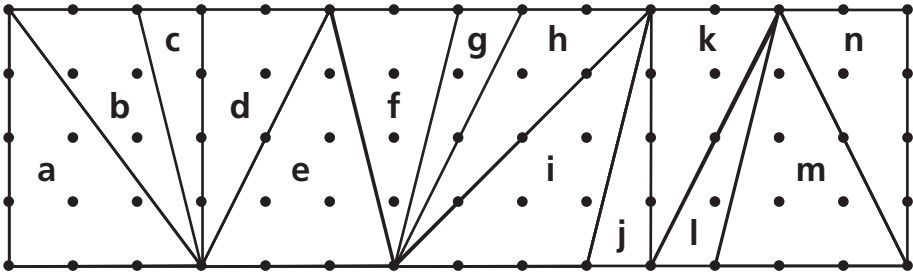
Area	1	2	3	4	5	6	7
green area							
purple area							
white area							
unit of area (circle one)	square in.	square in.	square in.	square in.	square in.	square in.	square in.
	square cm	square cm	square cm	square cm	square cm	square cm	square cm
	other unit	other unit	other unit	other unit	other unit	other unit	other unit

Find the area of each region and fill in the chart.
Measure to identify the area unit.



Area	8	9	10	11	12	13
yellow area	3					
purple area						
white area						
total area						
unit of area						

14 Challenge Color all the regions that have the same area with the same color.



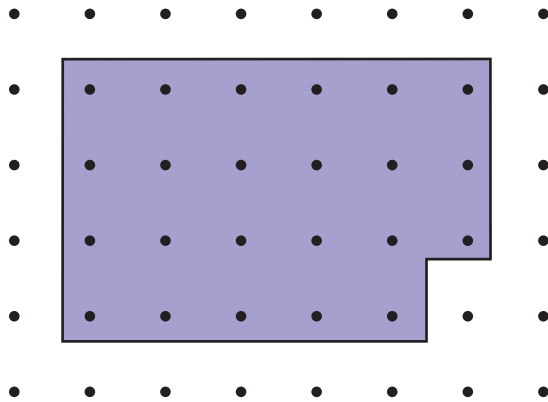
Estimating Area in Standard Units

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.11A, 4.16B

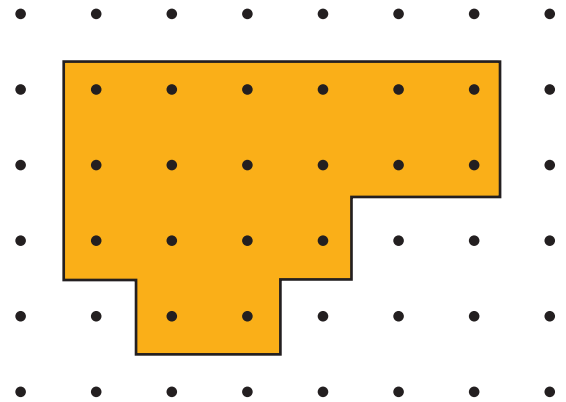
Estimate the area of each figure in square centimeters.

1



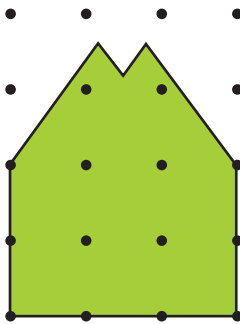
Area: about _____ square cm

2



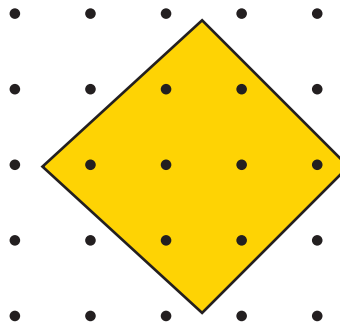
Area: about _____ square cm

3



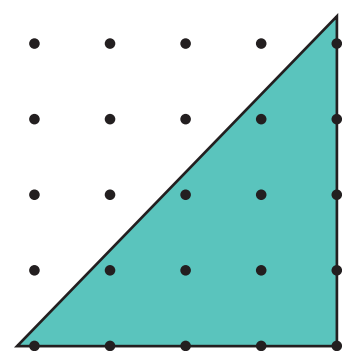
Area: about
_____ square cm

4

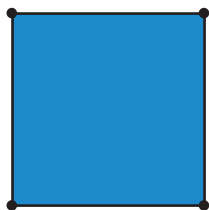


Area: about
_____ square cm

5



Area: about
_____ square cm



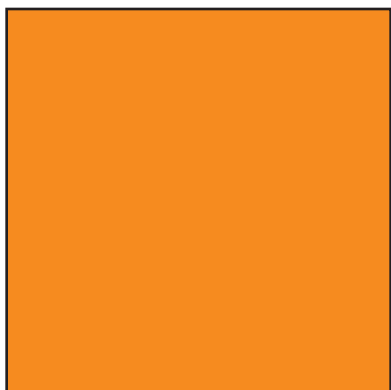
= 1 square inch



= 1 square centimeter

Estimate the area of each figure in square inches and in square centimeters.

6



Area: about _____ square inches

Area: about _____ square cm

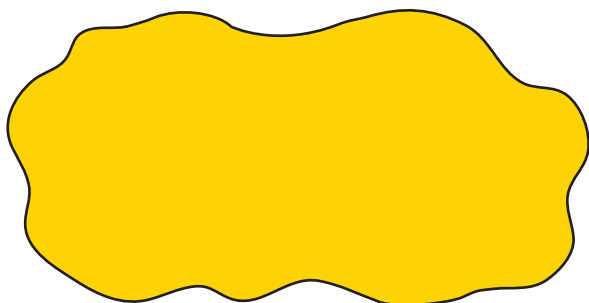
7



Area: about _____ square inches

Area: about _____ square cm

8



Area: about _____ square inches

Area: about _____ square cm



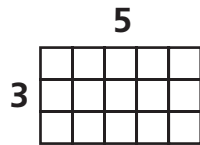
9 Challenge How could you use a ruler to help you estimate the area of a figure?

Introducing Perimeter

NCTM Standards 1, 2, 6, 7, 8, 9, 10

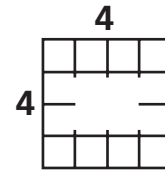
TEKS 4.3A, 4.4A, 4.4D, 4.4E, 4.11A

1



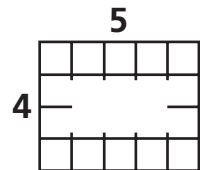
length	5	area	
width	3	perimeter	16

2



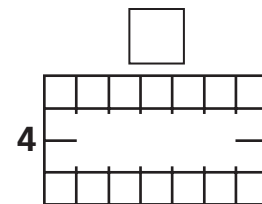
length	4	area	
width	4	perimeter	

3



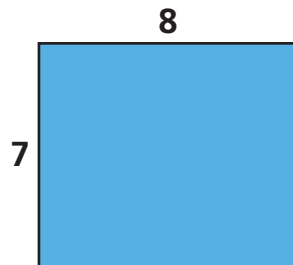
length	5	area	
width	4	perimeter	

4



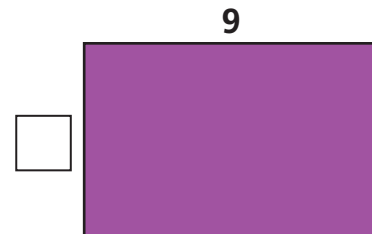
length		area	28
width	4	perimeter	

5



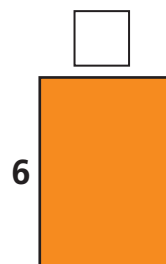
length	8	area	
width	7	perimeter	

6



length	9	area	54
width		perimeter	

7



length		area	24
width	6	perimeter	

8

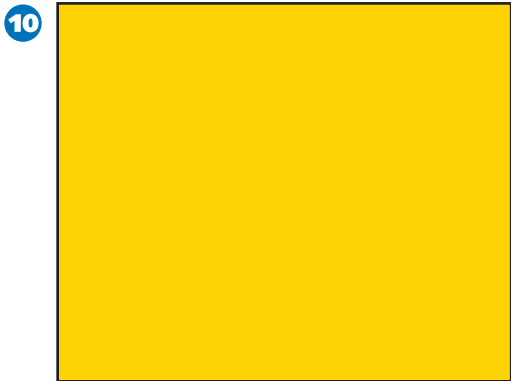


length	8	area	24
width		perimeter	22

Measure to find the length, width, and perimeter of the rectangle.




length	inches
width	inches
perimeter	inches



length	centimeters
width	centimeters
perimeter	centimeters



length	centimeters
width	centimeters
perimeter	centimeters

 **12 Challenge** Find the areas of the rectangles on this page. Include the units in your answers.

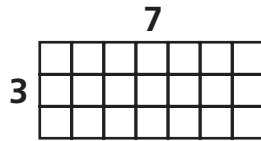
9	
10	
11	

Connecting Perimeter and Area

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.3A, 4.4A, 4.4D, 4.4E, 4.14A, 4.14B, 4.15A

1



perimeter

area

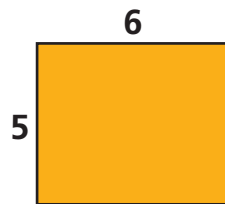
2



perimeter

area

3



perimeter

area

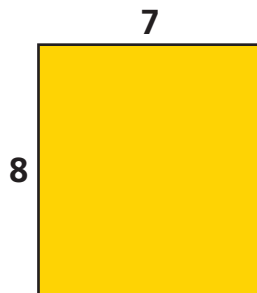
4



perimeter

area

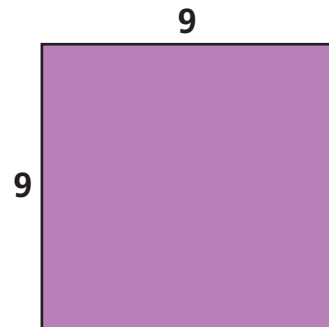
5



perimeter

area

6



perimeter

area

Quinlan's Quilt Shop sold a quilt that was 5 feet wide and 7 feet long.



7 What was the perimeter of the quilt? How did you find the answer?

8 The quilt was made out of squares whose sides were 1 foot long. How many squares were in the quilt?

9 What was the area of the quilt?

For each column in the table, draw a figure with the given area or perimeter. The figure does not have to be a rectangle. Fill in the rest of the table based on the figures you drew.

	10	11	12	13	14	15
area	12	12				15
perimeter			16	18	20	16

10

11

12

13

14

15

Challenge Kathleen has 28 meters of wire fence to put around her garden.

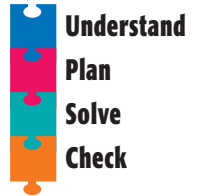
- 16
What is the largest rectangular area she can enclose inside the fence?
- 17
What would be the length and width of her garden?

Problem Solving Strategy

Solve a Simpler Problem

NCTM Standards 1, 2, 6, 7, 8, 9, 10

TEKS 4.3A, 4.4A, 4.4D, 4.11A, 4.14C



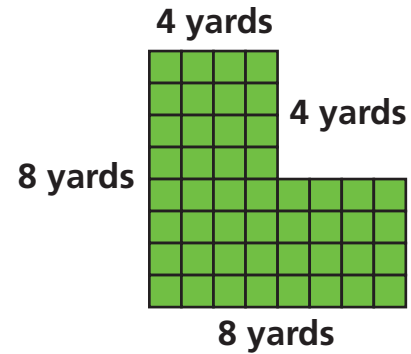
Solve each problem.

- 1 A diagram of Hong Lin's swimming pool is shown at the right.

She measured some of the sides. Use her measurements to find the perimeter and area of her pool.

perimeter: _____

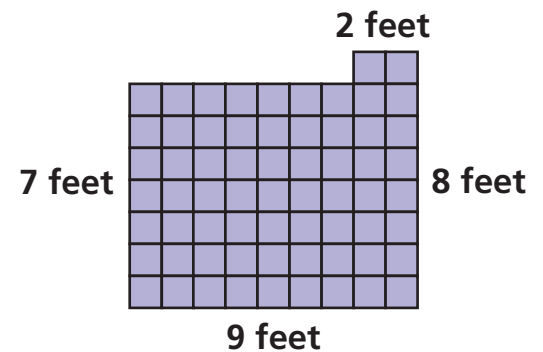
area: _____



- 2 A diagram of Maria's garden is shown at the right.

What is the area of the garden?

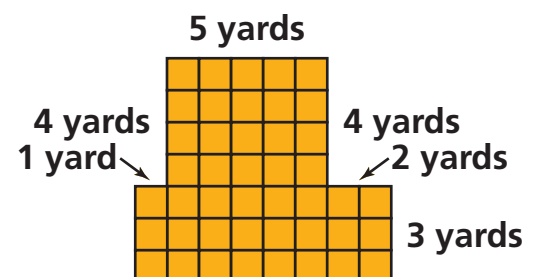
How long is the fence around the garden?



- 3 A diagram of Tony's kitchen is shown at the right.

What is the perimeter of his kitchen?

What is the area of the kitchen?



Problem Solving Test Prep

Choose the correct answer.

- 1 Andrea has a roll of ribbon to make bows for bags of cookies. If the roll has 248 inches of ribbon and Andrea uses 8 inches of ribbon to make each bow, how many bows can she make?
- A. 30 bows
B. 31 bows
C. 34 bows
D. 40 bows

- 2 Timon’s dad is figuring out how many posts he needs for a fence around a garden. He draws the three plans below. If he continues the pattern, how many posts will he use in his next plan?

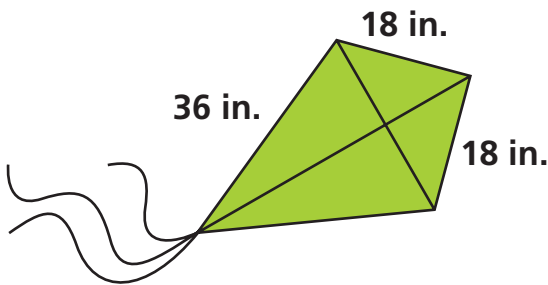


- A. 22 posts C. 26 posts
B. 24 posts D. 28 posts

Show What You Know

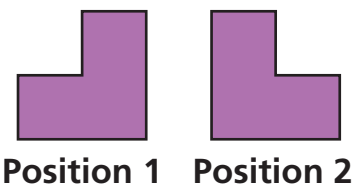
Solve each problem. Explain your answer.

- 3 Holly’s kite has a perimeter of 108 inches.



How long is the fourth side of Holly’s kite? Explain how you know your answer is correct.

- 4 Will transformed this figure from Position 1 into Position 2.



Name a transformation that Will could have used to move the figure. Explain how you know.

Use the figure for Problems 1–3. [Lessons 1, 2](#)

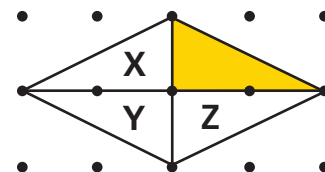
- 1 What is the area of the yellow piece? Dots are 1 centimeter apart.

_____ square cm

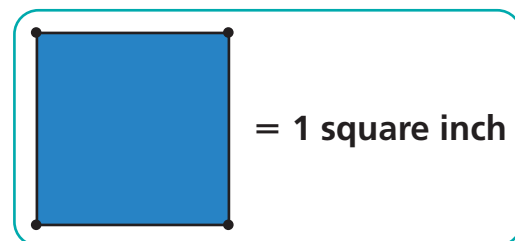
- 2 Would you **reflect**, **rotate**, or **translate** the yellow piece to get each of the other pieces?

X: _____ Y: _____ Z: _____

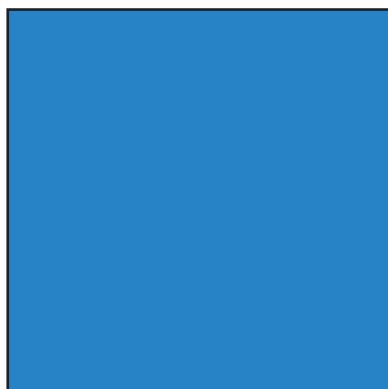
- 3 What is the total area of the shape? _____ square cm



Measure the perimeter of each figure in inches. Estimate the area of each figure in square inches. [Lessons 4, 5, 6, 7](#)



4



perimeter	inches
area (estimated)	square inches

5



perimeter	inches
area (estimated)	square inches

6 How many small triangles would you need to make a figure congruent to the big triangle? _____

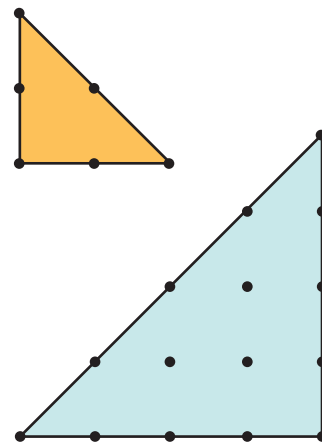
7 Show how you would arrange the small triangles.

8 What is the area of the small triangle?

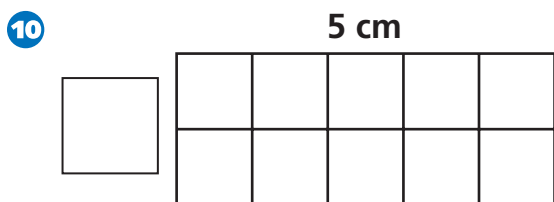
_____ square cm

9 What is the area of the big triangle?

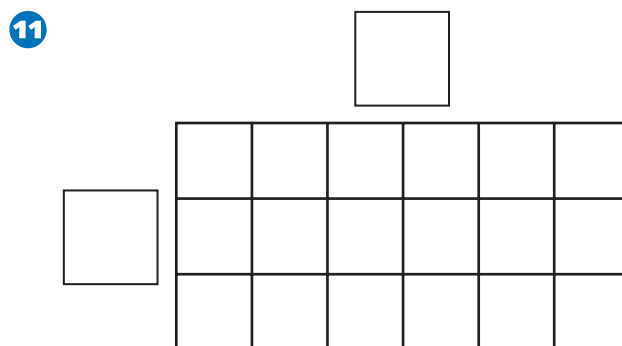
_____ square cm [Lesson 2](#)



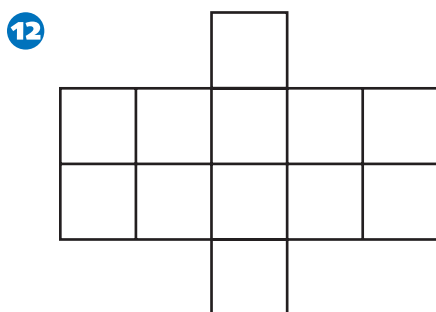
For 10–12, find the length of the missing sides in centimeters. Then find the area and perimeter. [Lesson 6](#)



perimeter	cm
area	square cm



perimeter	
area	



perimeter	
area	

13 What simpler problem could you solve to help you find the area in Problem 12?

Multiplication Puzzles

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.4C, 4.4D, 4.6A

Complete each puzzle.

1

×	3
	5

2

	3
×	
	8

3

	9
×	
2	

4

×	6
2	

5

	7
×	
	9

6

×	4
2	0

7

×	4
4	8

8

×	
2	5

9

×	8
5	

10

×	9
	1

11

1	0
×	
7	

12

	9
×	
	3

13

×	8
7	

14

	8
×	
3	

15

×	
6	4

16

×	
1	3

17

	3	
	×	
1	5	0

18

		7
	×	
1	1	9

19

	5	
	×	
2	0	0

20

		3
	×	
2	1	2

21

		5
	×	
1	7	0

Challenge

22

2	2	4	2

23

	4		
	9	2	2

24

	1		1
5	9	0	

Multiples of 10 and 100

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.4A, 4.4D, 4.4E, 4.6B

Remember the Eraser Store?

They sell erasers, and package 10 erasers in a pack, 10 packs in a box, and 10 boxes in a crate.

Find the number of erasers.

1

6 packs

$$5 \times \begin{array}{c} \text{—————} \\ \text{—————} \\ \text{—————} \\ \text{—————} \\ \text{—————} \end{array} = \boxed{} \text{ erasers}$$

2

3 packs

$$8 \times \begin{array}{c} \boxed{} \\ \text{—————} \\ \text{—————} \\ \text{—————} \end{array} = \boxed{} \text{ erasers}$$

3

4 packs

$$4 \times \begin{array}{c} \boxed{} \\ \text{—————} \\ \text{—————} \\ \text{—————} \\ \text{—————} \end{array} = \boxed{} \text{ erasers}$$

4

$\boxed{}$ packs

$$3 \times \boxed{} = 270 \text{ erasers}$$

5

5 packs

$$\boxed{} \times \begin{array}{c} \boxed{} \\ \text{—————} \\ \text{—————} \\ \text{—————} \\ \text{—————} \end{array} = 350 \text{ erasers}$$

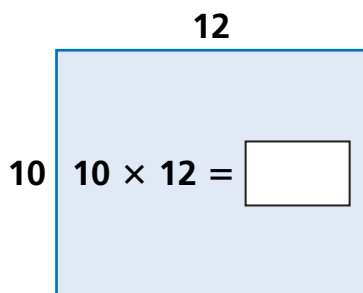
6

7 boxes

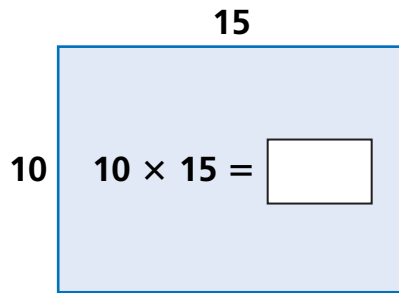
$$2 \times \begin{array}{c} \boxed{} \\ \text{—————} \\ \text{—————} \\ \text{—————} \\ \text{—————} \\ \text{—————} \\ \text{—————} \end{array} = \boxed{} \text{ erasers}$$

Find the area of each rectangle.

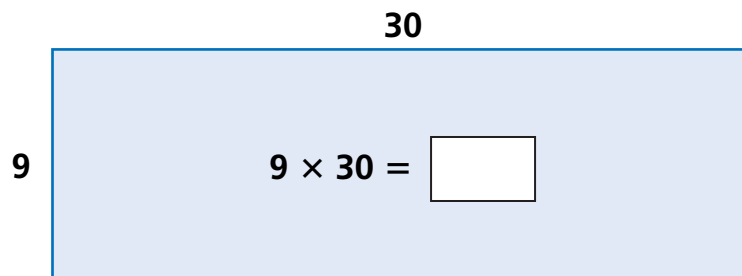
7



8

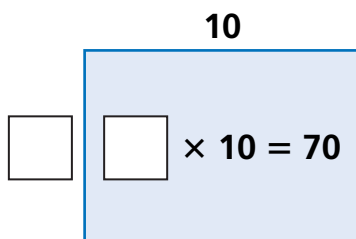


9

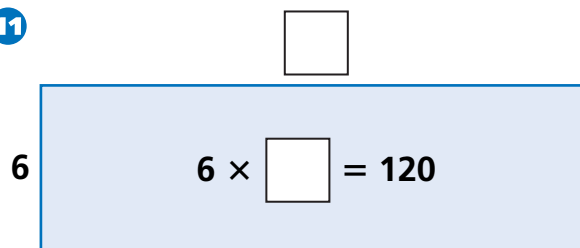


Find the missing length.

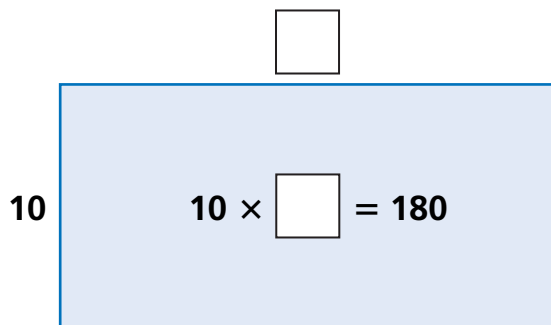
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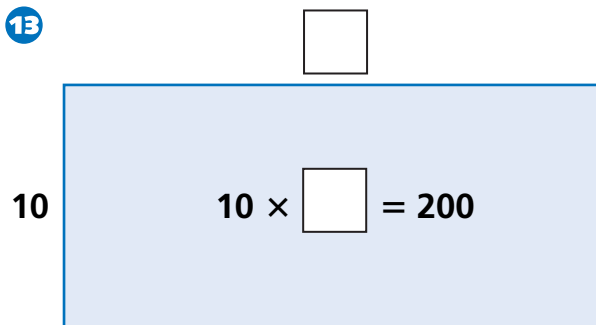
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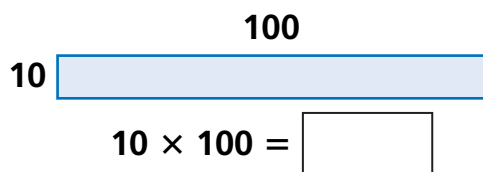
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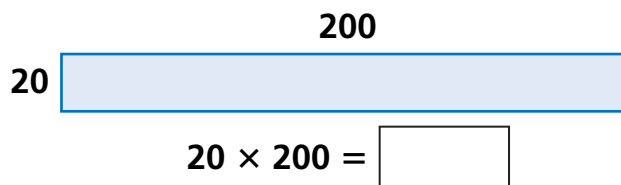
13



14 Challenge



15 Challenge



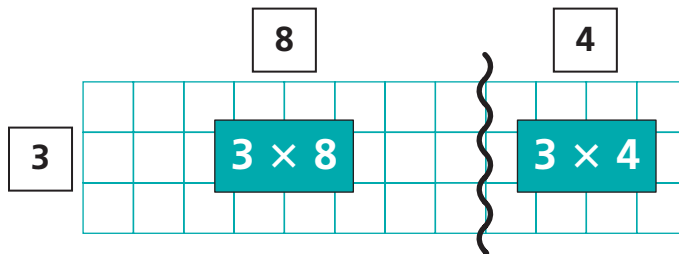
Using Arrays to Model Multiplication

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.4A, 4.4B, 4.4C, 4.4D

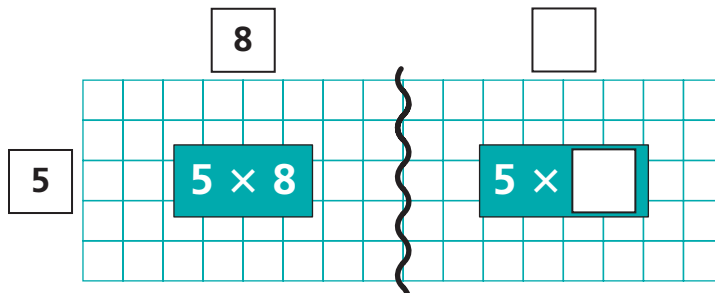
Complete each chart to find the number of squares in each array.

1 $3 \times 12 = \square$



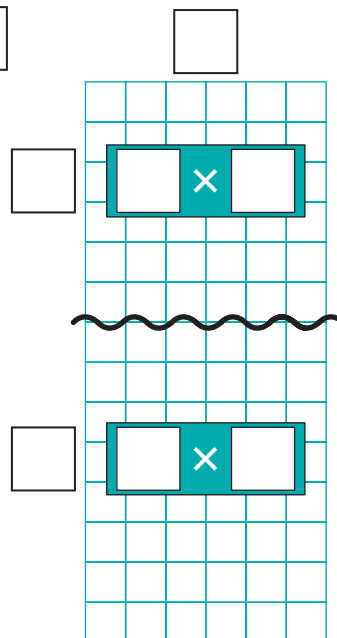
×	8	4	12
3		12	

2 $5 \times 16 = \square$



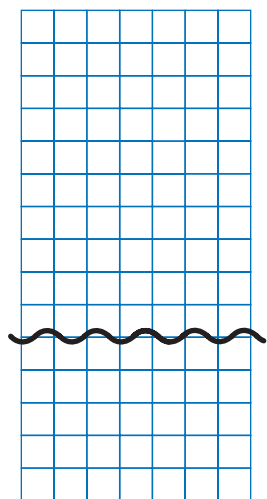
×	8	8	
5			

3 $14 \times 6 = \square$



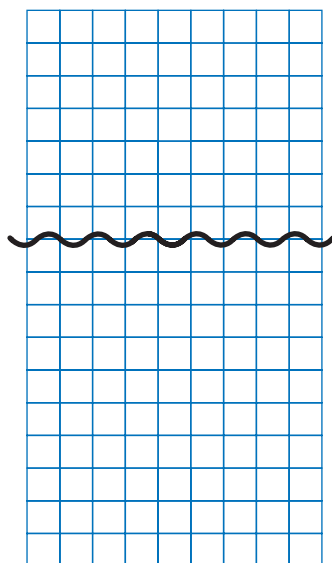
×	6
6	
8	

4 $15 \times 7 = \boxed{}$



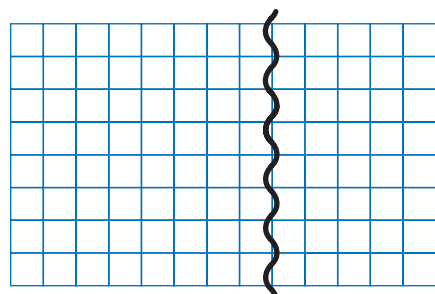
	×	7
10		
15		

5 $17 \times 9 = \boxed{}$



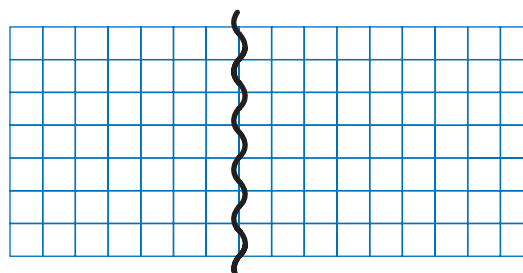
	×	9
7		
17		

6 $8 \times 13 = \boxed{}$



	×			13
8				

7 $7 \times 16 = \boxed{112}$



	×			16
7				

8 Challenge A theater has 12 rows of seats. There are 18 seats in each row. How many seats are there?

seats

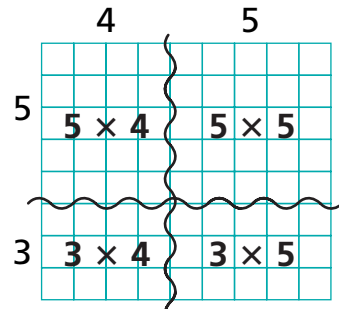
Splitting Larger Arrays

NCTM Standards 1, 2, 6, 7, 8, 9, 10

TEKS 4.4A, 4.4B, 4.4C, 4.4D, 4.14C

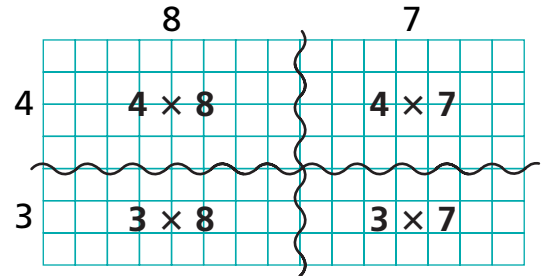
Use the arrays and charts to solve the multiplication problems.

1 $9 \times 8 = \boxed{}$



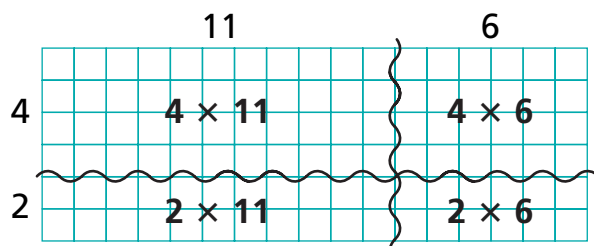
×	4	5	9
5	20		
3			
8			

2 $15 \times 7 = \boxed{}$



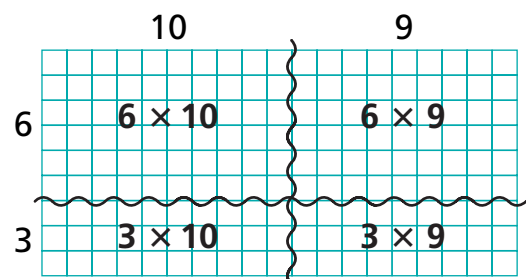
×	8	7	
4			
3			
7			

3 $17 \times 6 = \boxed{}$



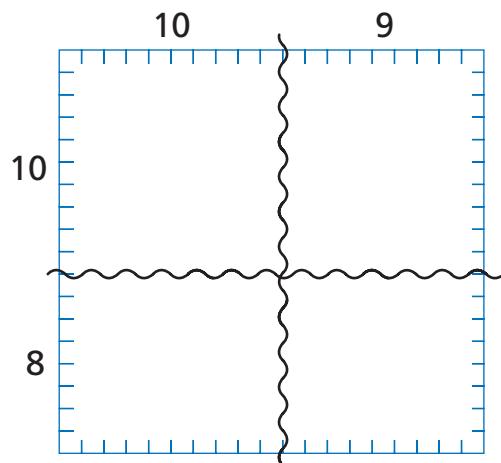
×	11	6	
4			
2			

4 $19 \times 9 = \boxed{}$



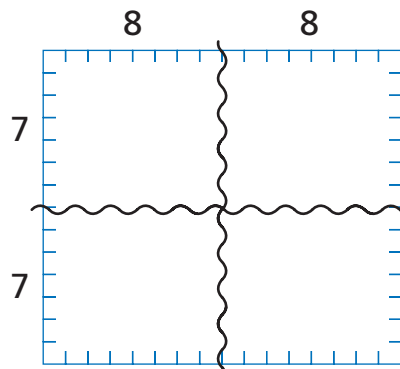
×	10	9	
6			
3			

5 $19 \times 18 = \boxed{}$



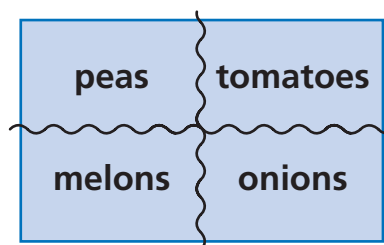
×		9	19
8			
18			

6 $16 \times 14 = \boxed{}$



×		8	16
7			
14			

7 Challenge Jenna is planting a garden that is 11 feet long and 18 feet wide. She wants to plant peas, tomatoes, melons, and onions in separate rectangular sections. Suggest a way she might separate the garden to match the diagram at the right.



Areas for:

Peas

Tomatoes

Melons

Onions

Total

Find the areas of the sections you suggest.

×			18
11			

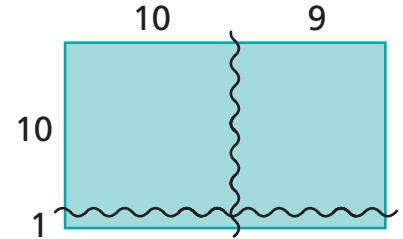
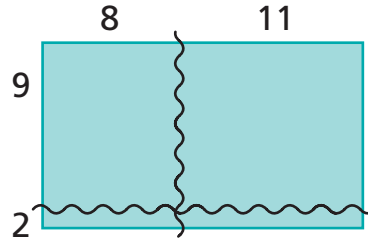
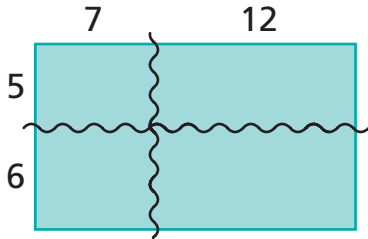
Choosing Simpler Problems

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.4A, 4.4B, 4.4C, 4.16B

Solve the multiplication problems.

$$19 \times 11 = \boxed{}$$



1	\times	7	12	19
5		35		
6				
11				

2	\times	8	11	19
9				
2				
11				

3	\times	10	9	19
10				
1				

$$17 \times 16 = \boxed{}$$

4	\times	11	6	17
8				

5	\times	10	7	
6				
16				

6	\times	9	8	
9				
7				

7

$$16 \times 16 = \square$$

×			16
16			

8

$$13 \times 19 = \square$$

×			

9

$$14 \times 17 = \square$$

×			

10

$$17 \times 18 = \square$$

×			

11 Challenge Explain why you decided to fill in the chart in Problem 10 the way you did.

From Charts to Vertical Records

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.4B, 4.4D

Fill in the boxes to complete each problem.

1

6

10 6×10

8 8×6

$18 \times 6 = \boxed{}$

	6
10	
8	
18	

10×6

8×6

18×6

1	8	
	6	
	6	0

2

30

10

4

$30 \times 14 = \boxed{}$

	30
10	
4	
14	

10×30

4×30

14×30

1	4	
3	0	

3

10 8

60

$18 \times 60 = \boxed{}$

	10	8	18
60			

	6	0	

4

	1	6
×	2	0

5

	4	0
×	1	7

6

	2	5
×	6	0

7

	5	0
×	3	8

8

	8	0
×	1	9

9

	4	1
×	9	0

- 10 Challenge** Rachel's mom bought 30 books at the book fair. Ten of the books cost \$12 each, and the rest of the books cost \$11 each. How much did she spend?

\$

Recording Your Process of Multiplication

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.4B, 4.4D

Use the chart and vertical record to help you complete each problem.

1 $13 \times 18 =$

×	10	3	13
10	100		
8			
18			

10×10 →

3×10 →

10×8 →

3×8 →

13×18 →

	1	3
×	1	8
1	0	0

2 $23 \times 14 =$

×	20	3	23
4			
10			
14			

20×4 →

→

→

→

23×14 →

	2	3
×	1	4

Find the products. Record your work in the boxes below each problem.

3

		2	7
	×	1	6

4

		3	8
	×	4	3

5

		2	6
	×	5	4

6

		6	7
	×	6	8

7

		6	8
	×	6	8

8

		6	7
	×	6	9

9 Challenge 86 people came to the school car wash. The charge for having your car washed was \$12. The students spent \$150 on supplies. How much money did they make, after paying for supplies?

\$

Checking for Reasonable Answers

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.4C, 4.4D, 4.5B, 4.14C, 4.16B

Look for ways to make the multiplication easier.
Record as much of your work as you need.

1

		6	7
	×	2	3

2

		3	5
	×	2	6

3

		3	2
	×	6	5

4

		5	2
	×	1	8

5

		8	4
	×	7	6

6

		7	6
	×	8	4

7

		6	7
×		3	8

8

		6	7
×		4	8

9

		6	7
×		5	8

10

		8	4
×		8	7

11

		1	8	4
	×		8	7

12 Challenge Amy tried $1,904 \times 21$ and got 70,085 as the answer. Describe one quick way to show this is NOT correct, without doing the whole problem.

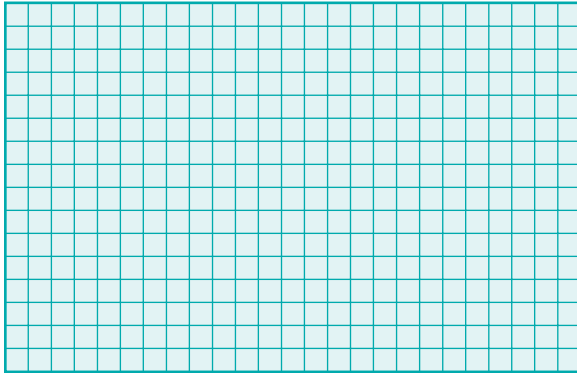
Multiplication Situations

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.4A, 4.4B, 4.4D, 4.6A

All of these problems can be solved using the same numbers. Fill in the missing numbers.

- 1** The kitchen floor is 25 tiles long
16 tiles wide.



tiles are on the
kitchen floor.

- 2** I have 16 quarters.
How much money do I have?



- 3** There are 400 ounces in _____
pounds.
16 ounces = 1 pound

- 4** A bakery made _____ cakes and
cut each cake into 25 pieces.
There were 400 pieces to sell.

- 5** There are 16 classes in the school. Each class has
students. There are 400 students in the school.

- 6** Write another problem that can be solved
using $16 \times 25 = 400$.

Ms. Johnson’s students raise money for charity at the school store. They sell school supplies to the other students. Solve these problems about the store.

SCHOOL STORE	
Eraser19¢	Pencil34¢
Black Pen47¢	Red Pen96¢

7 A box of markers costs 24 times as much as one eraser. How much does a box of markers cost?

8 Each student in Ms. Johnson’s class works at the school store 27 hours per year. There are 26 students in the class. How many hours do the students work all together?

_____ hours

9 Ms. Yee bought 37 pencils and 26 erasers. How much did she pay?

10 Red pens come in packs of 48 pens. How much would an entire pack cost?

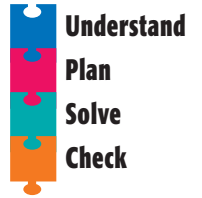
11 **Challenge** One morning, 17 students each bought one black pen. How much money did they spend all together?

12 **Challenge** The school store earned \$28 this week. The store is open 34 weeks per year. If the store earns this much money every week, how much money will it earn?

Problem Solving Strategy

Guess and Check

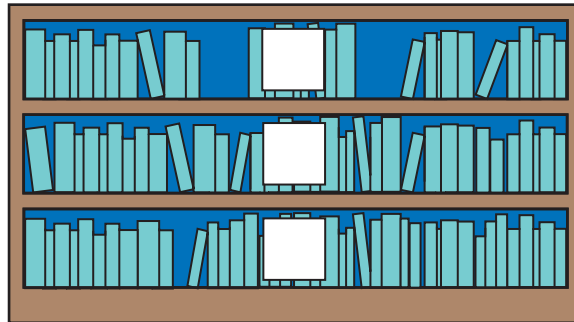
NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.3A, 4.4E, 4.14C, 4.16B


- 1 The sum of two numbers is 25, and their product is 156. What are the numbers?

and

- 2 All of Laura's 105 books are on 3 shelves. Each shelf has 5 more books than the shelf above it. How many books are on each shelf?

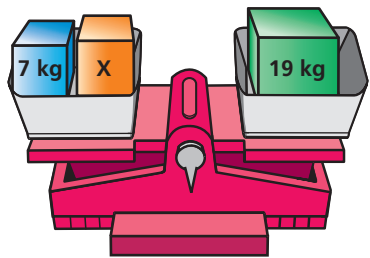


- 3 Eight friends shared \$192 equally. How much money did each friend get?

Problem Solving Test Prep

Choose the correct answer.

1 What is the weight of box X on the scale?



- A. 26 kg
 - B. 25 kg
 - C. 12 kg
 - D. 11 kg
- 2 What product can you find using the array?

×		9	
10	100	90	
	20	18	

- A. 10×9
- B. 10×12
- C. 12×19
- D. 19×28

3 Which number completes the magic square?

4	20	9
16	11	6
13	2	■

- A. 18
 - B. 17
 - C. 15
 - D. 14
- 4 Which set of measures is ordered correctly from least to greatest?
- A. 3 pints, 2 quarts, 5 cups
 - B. 1 gallon, 6 quarts, 11 cups
 - C. 2 gallons, 9 quarts, 24 cups
 - D. 1 gallon, 5 quarts, 21 cups

Show What You Know

Solve each problem. Explain your answer.

5 Ralph has 20 coins. He makes 4 stacks so that each stack has a different number of coins. What is the largest number of coins he could put in any stack? Explain.

Solve. Lessons 1 and 2

1

	9
×	
6	

2

	7
×	
3	

3

$6 \times 7 = \boxed{}$

$6 \times 70 = \boxed{}$

$60 \times 7 = \boxed{}$

$60 \times 70 = \boxed{}$

4 Use the array and the chart to solve the problem. Lessons 3, 4, and 5

$18 \times 26 = \boxed{}$

	20	
10		

×			

	1	8
×	2	6

Find the product. Lessons 6, 7, and 8

5

×

4	3
4	3

6

×

8	0
7	5

7

×

2	3
1	3

Solve. Lesson 9

- 8

Stephen read for 30 minutes each night. He read 13 pages per night. How many pages had he read after 14 nights?

_____ pages
- 9

Julie unpacked 22 boxes of library books. Evan unpacked 19 boxes of library books. Each box held 28 books. How many books did they unpack?

_____ books

- 10

Mr. Myer’s class is planning a field trip to the science center. Twelve students and six adults will be on the trip. The total cost for tickets will be \$216. Each adult ticket costs \$3 more than each student ticket. How much is each student tickets? Explain your answer.

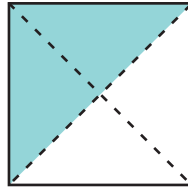
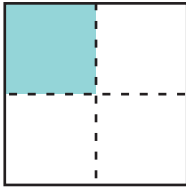
Exploring Fractions

NCTM Standards 1, 2, 6, 7, 8, 9, 10

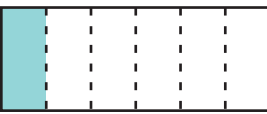
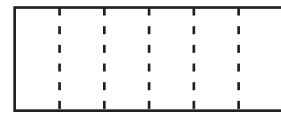
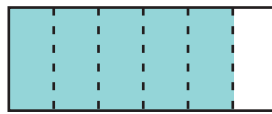
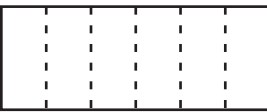
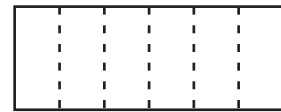
TEKS 4.15A, 4.16B

Make the pictures and fractions match.
Each whole rectangle = 1.

1

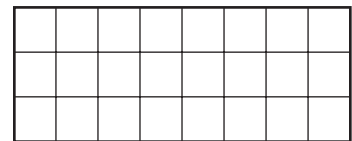
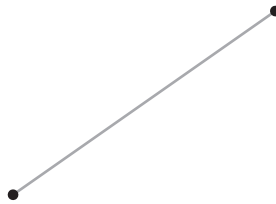
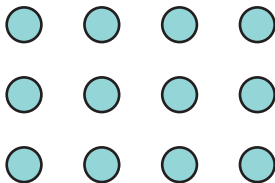
 $\frac{1}{2}$

2

 $\frac{1}{6}$  $\frac{6}{6}$  $\frac{1}{2}$  $\frac{2}{3}$

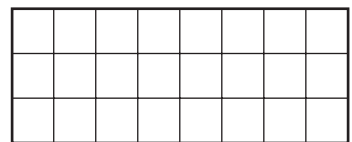
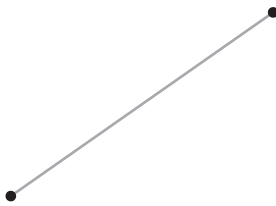
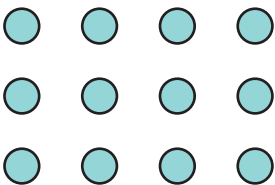
3

Separate each picture into thirds.



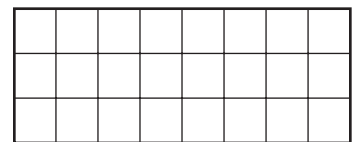
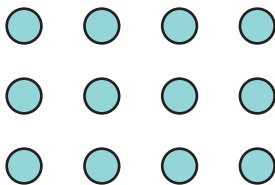
4

Separate each picture into fourths.

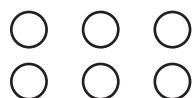


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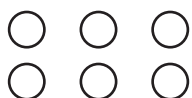
Separate each picture into sixths.



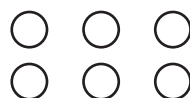
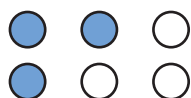
6 Make the pictures and fractions match.



$$\frac{1}{2}$$

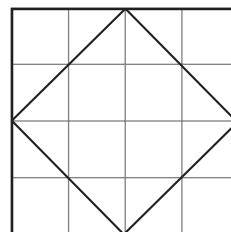
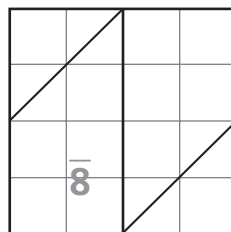
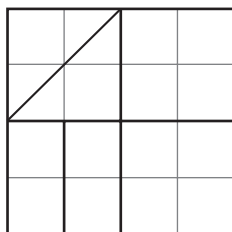
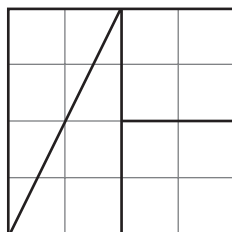
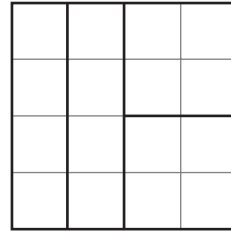
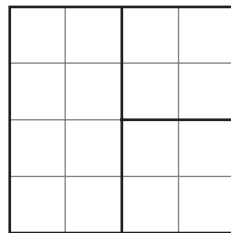
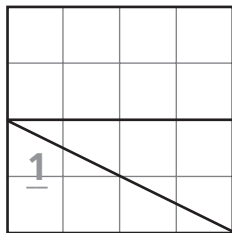
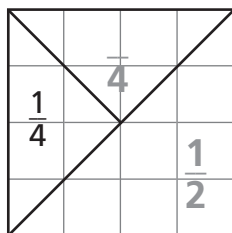


$$\frac{1}{3}$$

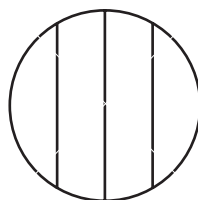
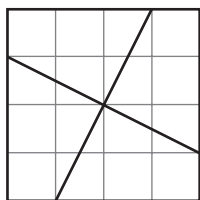
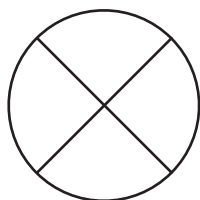
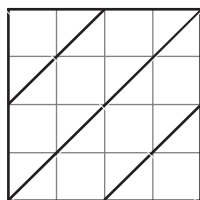


$$\frac{2}{3}$$

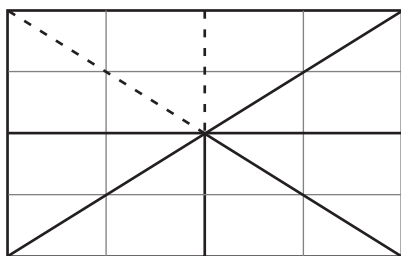
7 Name the fraction for each part. Each whole square = 1.



8 Two of these pictures are not cut into quarters. Cross them out.



9 **Challenge** Use a picture to show which fraction is greater, $\frac{3}{8}$ or $\frac{1}{2}$. Explain how you decided.



is greater than

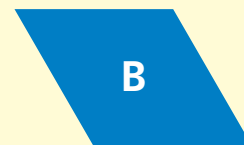
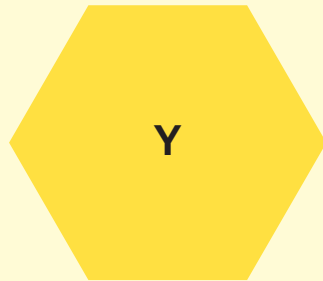


Exploring Fractions Greater than 1

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.2B, 4.14D


To solve the problems on this page, use these four pattern block shapes.



1

If  is 1

then  is _____

 is _____

 is _____

2

If  is 1

then  is _____

 is _____

 is _____

3

If  is 1

then  is _____


 is _____

 is _____

4

If  is 1

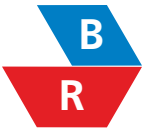
then  is _____


 is _____


 is _____

For the problems on this page, **Y** is 1.


Use pattern blocks if you like.

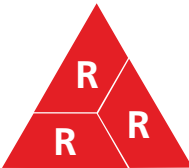
5  is $\frac{1}{2} + \frac{1}{3} = \frac{6}{6}$

6  is $\frac{\square}{\square} + \frac{\square}{\square} = \frac{\square}{\square}$

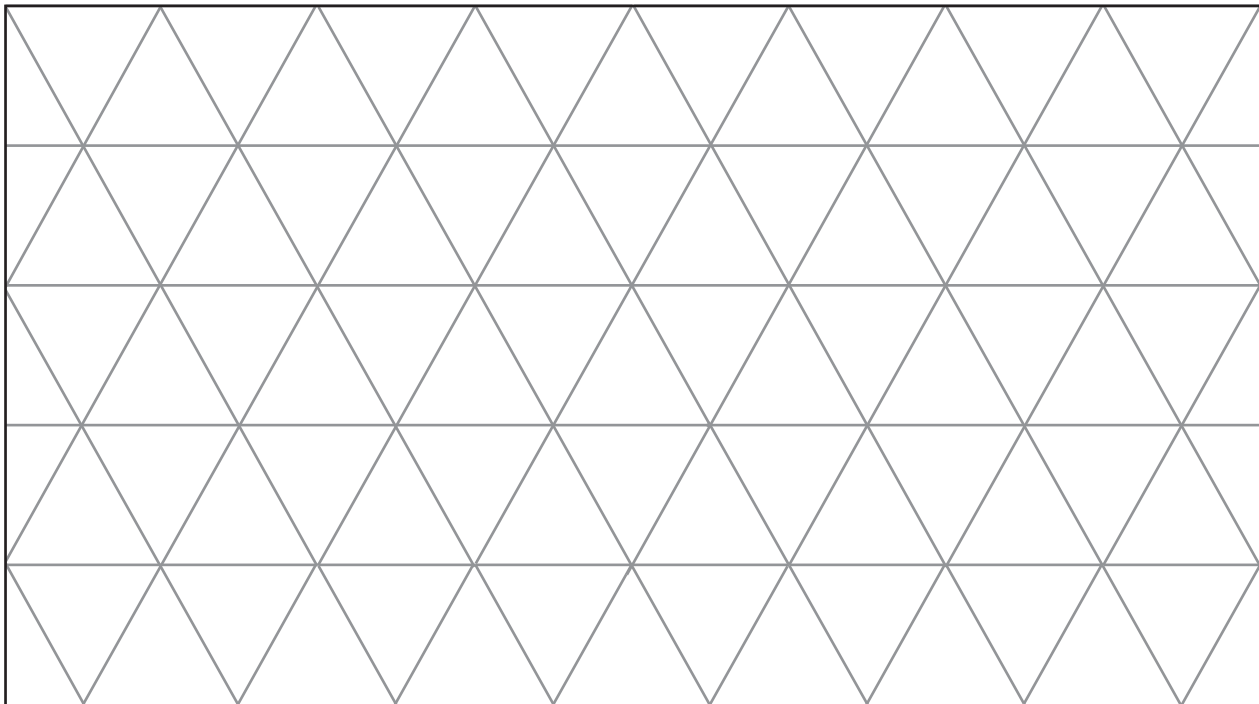
7  is $\frac{\square}{\square} + \frac{\square}{\square} = \frac{\square}{\square}$

8  is $1 + \frac{\square}{\square} = 1 \frac{\square}{\square}$

9  is $\frac{\square}{\square} + \frac{\square}{\square} = \frac{\square}{\square}$

10  is $\frac{\square}{\square} + \frac{\square}{\square} + \frac{\square}{\square} = \frac{\square}{\square}$

11 Challenge Create your own design that is equal to $3\frac{1}{2}$, or $\frac{7}{2}$.



Exploring Fractions with Cuisenaire® Rods

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.2B, 4.14D, 4.15A, 4.16B

All the problems on this page involve Cuisenaire® Rods.

N							
P				P			
R	R	R	R	R	R	R	R
W	W	W	W	W	W	W	W

1 If N is 1, then

P is _____.

R is _____.

W is _____.

2 If P is 1, then

R is _____.

W is _____.

N is _____.

3 If G is 1, then

W is _____.

R is _____.

D is _____.

4 If D is 1, then

G is _____.

W is _____.

R is _____.

D					
G			G		
R	R	R	R	R	R
W	W	W	W	W	W

5 If R is 1, then

W is _____.

D is _____.

R is _____.

K is _____.

G is _____.

N is _____.

P is _____.

E is _____.

Y is _____.

O is _____.

W

R

G

P

Y

D

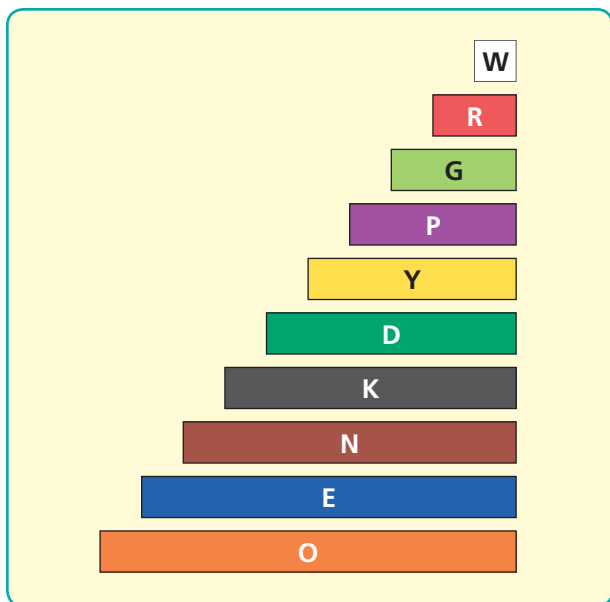
K

N

E

O

All the problems on this page involve Cuisenaire® Rods.



6 $\frac{1}{2}$ of R = 1W, so 1R = _____ W.

7 $\frac{1}{3}$ of G = 1W, so 1G = _____ W.

8 $\frac{1}{2}$ of D = 1G, so 1D = _____ G.

9 $\frac{1}{4}$ of P = 1W, so 1P = _____ W.

10 _____ R = 1N, so 1R = $\frac{1}{4}$ N.

11 _____ N = 1P, so 1N = _____ P.

12 _____ G = 1E, so 1G = _____ E.

13 _____ R = 1O, so 1R = _____ O.

14 1W = _____ P, so 3W = _____ P.

15 1R = _____ D, so 2R = _____ D.

16 _____ G = $\frac{1}{3}$ E, so 2G = $\frac{2}{3}$ E.

17 1R = _____ O, so 3R = _____ O.



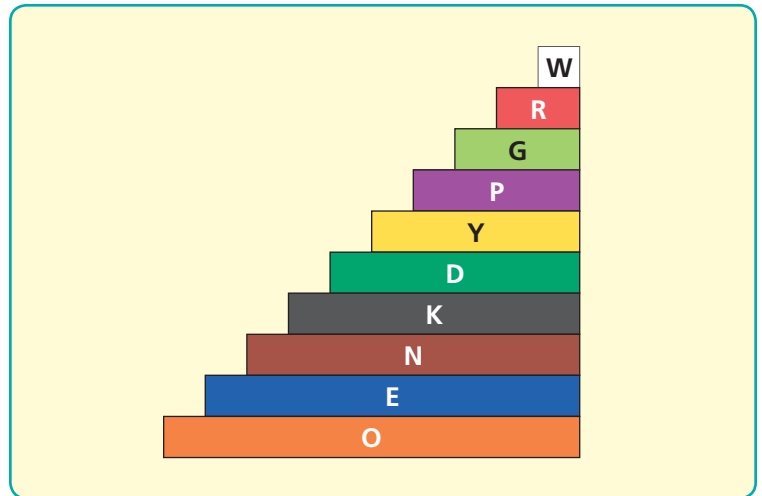
18 Challenge Find a rod that is exactly $\frac{2}{5}$ of another rod.
Explain how you found your answer.

Reasoning About Cuisenaire® Rod Fractions

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.2B, 4.14C, 4.14D, 4.16B

All the problems on this page involve Cuisenaire® Rods.



1 If W is $1\frac{1}{2}$, then

R is _____.

G is _____.

P is _____.

N is _____.

E is _____.

O is _____.

G + O is _____.

P + E is _____.

2 If G is $1\frac{1}{2}$, then

W is _____.

R is _____.

P is _____.

Y is _____.

D is _____.

K is _____.

O is _____.

$Y \times 2$ is _____.

3 If D is 2, then

W is _____.

R is _____.

G is _____.

P is _____.

Y is _____.

O is _____.

R + N is _____.

G + K is _____.

Use the price chart to answer the questions below.

2 feet of licorice	\$1.00	:	$2\frac{1}{2}$ feet of string	\$1.50
2 pounds of rice	\$2.00	:	3 bags of peanuts	\$0.99

4 How much would $\frac{1}{2}$ a foot of licorice cost? _____

5 How much would $2\frac{1}{2}$ feet of licorice cost? _____

6 How much would $1\frac{1}{2}$ pounds of rice cost? _____

7 How much would 3 feet of string cost? _____

8 How much would 4 bags of peanuts cost? _____



9 **Challenge** Licorice is on sale!

If you buy at least 3 feet of licorice, every $1\frac{1}{2}$ feet costs only 60¢.

How much would 7 feet of licorice cost? Explain how you found the answer.

Fractions of a Foot

NCTM Standards 1, 2, 6, 7, 8, 9, 10

TEKS 4.2A, 4.7, 4.14A, 4.15A

What fraction of each picture is shaded?
What fraction is not shaded?

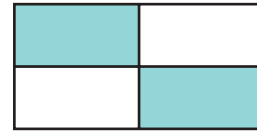
1



shaded not shaded

2

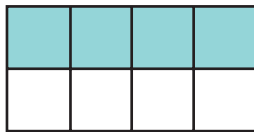
2



shaded not shaded

4

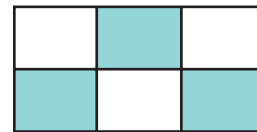
3



shaded not shaded

8

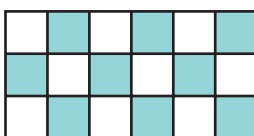
4



shaded not shaded

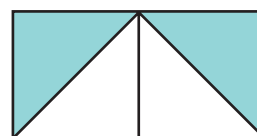
3

5



shaded not shaded

6



shaded not shaded

7 Record all of the fractions above, and complete the others so that they all represent one half.

1	2	3		10	9			
2	4		8			40	100	98

- 8 Nick is going to make some trail mix, but he's not sure how many batches he wants to make. Complete this table for him to use:

Number of Batches	1	$\frac{1}{2}$	2	3	4	$4\frac{1}{2}$
Granola	1 c	$\frac{1}{2}$ c	c	c	c	c
Dried Apricots	$\frac{1}{2}$ c	c	c	c	c	c
Sunflower Seeds	$\frac{2}{3}$ c	c	c	c	c	c
Raisins	$\frac{1}{4}$ c	c	c	c	c	c
Chocolate Chips	$\frac{1}{3}$ c	c	c	c	c	c

- 9 Nick decided to make just **one** batch of trail mix. Here is what he has in his kitchen:

Granola . . . $\frac{9}{10}$ c Dried apricots . . . $\frac{8}{16}$ c Sunflower seeds . . . $\frac{4}{6}$ c
 Raisins . . . $\frac{7}{8}$ c Chocolate chips . . . $\frac{1}{5}$ c

Nick has enough _____, _____, and _____ to make one batch of trail mix. He needs to buy more _____ and _____ to make one batch of trail mix.



- 10 **Challenge** Nick decided to add **10** ounces of banana chips to each batch.

Number of Batches	1	$\frac{1}{2}$	2	4		$\frac{1}{10}$			$3\frac{1}{2}$
Ounces of Banana Chips	10				30		100	70	

How could you use this chart to figure out how many ounces of banana chips Nick should add to $1\frac{1}{2}$ batches of trail mix?

Comparing Fractions with $\frac{1}{2}$

NCTM Standards 1, 2, 6, 7, 8, 9, 10

TEKS 4.2A, 4.2C, 4.14A, 4.14D

- 1 Complete each fraction so that it equals $\frac{1}{2}$.

$$\frac{1}{2}$$

$$\frac{2}{4}$$

$$\frac{10}{20}$$

$$\frac{50}{100}$$

$$\frac{6}{12}$$

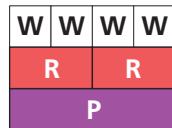
$$\frac{16}{32}$$

$$\frac{3}{6}$$

$$\frac{4}{8}$$

$$\frac{20}{40}$$

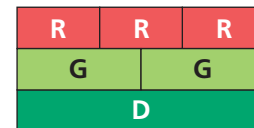
Use $<$, $>$, or $=$ to compare each fraction with $\frac{1}{2}$.



2 $\frac{1}{2} < \frac{3}{4}$

3 $\frac{1}{2} \bigcirc \frac{2}{4}$

4 $\frac{1}{2} \bigcirc \frac{0}{4}$



5 $\frac{1}{2} \bigcirc \frac{2}{3}$

6 $\frac{1}{2} \bigcirc \frac{1}{2}$

7 $\frac{1}{2} \bigcirc \frac{3}{3}$

8

$$\frac{15}{16} \bigcirc \frac{1}{2}$$

9

$$\frac{8}{16} \bigcirc \frac{1}{2}$$

10

$$\frac{1}{2} \bigcirc \frac{7}{16}$$

11

$$\frac{14}{28} \bigcirc \frac{1}{2}$$

12

$$\frac{2}{5} \bigcirc \frac{1}{2}$$

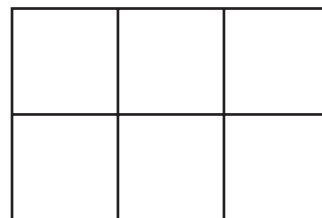
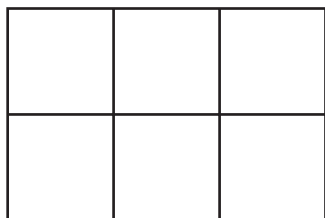
13

$$\frac{5}{8} \bigcirc \frac{1}{2}$$



- 14 On Monday, $\frac{5}{9}$ inch of rain fell. On Tuesday, $\frac{2}{3}$ inch of rain fell. On Wednesday, $\frac{1}{2}$ inch of rain fell. On which day did the most rain fall? Use Cuisenaire® Rods to help you solve this problem. Explain your answer.

- 15 **Challenge** Show three different ways to shade $\frac{5}{10}$ of the rectangle.



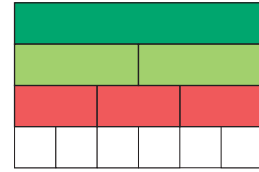
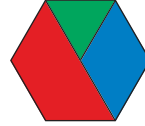
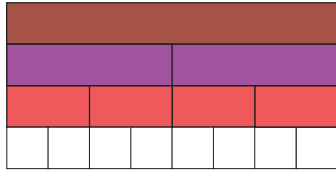
Comparing Fractions

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.2A, 4.2C, 4.14D, 4.15A, 4.16B

Compare the fractions using $<$, $=$, or $>$.

Use Cuisenaire® Rods or pattern blocks if you like.



1

$$\frac{1}{2} \bigcirc \frac{1}{4}$$

$$\frac{1}{4} \bigcirc \frac{3}{4}$$

$$\frac{2}{4} \bigcirc \frac{1}{2}$$

$$\frac{3}{8} \bigcirc \frac{2}{4}$$

$$\frac{3}{4} \bigcirc \frac{1}{2}$$

$$\frac{1}{2} \bigcirc \frac{4}{8}$$

$$\frac{1}{4} \bigcirc \frac{0}{4}$$

$$\frac{5}{8} \bigcirc \frac{3}{4}$$

2

$$\frac{1}{3} \bigcirc \frac{3}{3}$$

$$\frac{1}{3} \bigcirc \frac{1}{2}$$

$$\frac{2}{3} \bigcirc \frac{1}{2}$$

$$\frac{4}{6} \bigcirc \frac{1}{2}$$

$$\frac{2}{3} \bigcirc \frac{4}{6}$$

$$\frac{2}{6} \bigcirc \frac{1}{6}$$

$$\frac{3}{6} \bigcirc \frac{1}{2}$$

$$\frac{3}{3} \bigcirc \frac{6}{6}$$

- 3 Which is greater: $\frac{3}{5}$ or $\frac{4}{10}$? Use words or a drawing to show your answer.

4 Compare these fractions using $<$, $=$, or $>$.

$$\frac{1}{2} \bigcirc \frac{1}{5}$$

$$\frac{2}{5} \bigcirc \frac{1}{10}$$

$$\frac{1}{2} \bigcirc \frac{4}{10}$$

$$\frac{1}{5} \bigcirc \frac{3}{10}$$

$$\frac{1}{2} \bigcirc \frac{5}{10}$$

$$\frac{5}{10} \bigcirc \frac{2}{5}$$

$$\frac{3}{5} \bigcirc \frac{1}{2}$$

$$\frac{5}{10} \bigcirc \frac{4}{5}$$

$$\frac{2}{10} \bigcirc \frac{1}{5}$$

$$\frac{7}{10} \bigcirc \frac{2}{5}$$

$$\frac{2}{5} \bigcirc \frac{3}{5}$$

$$\frac{6}{10} \bigcirc \frac{3}{5}$$



5 **Challenge** Which is greater, $\frac{1}{5}$ or $\frac{1}{10}$? Explain how you know.

6 **Challenge** Fill in the missing numbers to make the fractions equal. Use Cuisenaire® Rods to help.

$$\frac{\square}{2} = \frac{3}{6}$$

$$\frac{2}{5} = \frac{\square}{10}$$

$$\frac{\square}{2} = \frac{3}{6}$$

$$\frac{5}{5} = \frac{\square}{4}$$

$$\frac{6}{8} = \frac{\square}{4}$$

$$\frac{1}{3} = \frac{\square}{9}$$

$$\frac{1}{2} = \frac{2}{\square}$$

$$\frac{3}{3} = \frac{7}{\square}$$

$$\frac{0}{4} = \frac{\square}{8}$$

Finding Equivalent Fractions

NCTM Standards 1, 2, 6, 7, 8, 9, 10

TEKS 4.2A, 4.16B

Complete the fractions to make the sentences true.

1



$$\frac{1}{4} = \frac{2}{\square}$$

$$\frac{1}{4} = \frac{\square}{20}$$

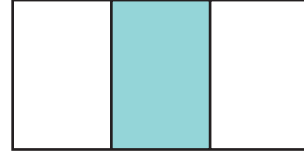
$$\frac{1}{4} = \frac{4}{\square}$$

$$\frac{1}{4} = \frac{\square}{32}$$

$$\frac{1}{4} = \frac{6}{\square}$$

$$\frac{1}{4} = \frac{\square}{40}$$

2



$$\frac{1}{3} = \frac{2}{\square}$$

$$\frac{1}{3} = \frac{3}{\square}$$

$$\frac{1}{3} = \frac{\square}{15}$$

$$\frac{1}{3} = \frac{6}{\square}$$

$$\frac{1}{3} = \frac{\square}{30}$$

$$\frac{1}{3} = \frac{8}{\square}$$

3



$$\frac{1}{5} = \frac{2}{\square}$$

$$\frac{1}{5} = \frac{\square}{15}$$

$$\frac{1}{5} = \frac{6}{\square}$$

$$\frac{1}{5} = \frac{\square}{25}$$

$$\frac{1}{5} = \frac{10}{\square}$$

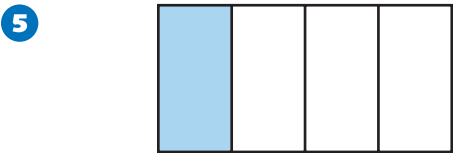
$$\frac{1}{5} = \frac{\square}{40}$$



4

How do you know that $\frac{1}{4}$ and $\frac{3}{12}$ are the same portion of the rectangle in Problem 1?

Use = or ≠ to show whether the fractions are equal or not.



$$\frac{1}{3} \bigcirc \neq \frac{1}{2}$$

$$\frac{3}{4} \bigcirc \frac{15}{20}$$

$$\frac{3}{4} \bigcirc \frac{6}{8}$$

$$\frac{9}{10} \bigcirc \frac{3}{4}$$



$$\frac{6}{6} \bigcirc \frac{8}{8}$$

$$\frac{4}{4} \bigcirc \frac{9}{8}$$

$$\frac{100}{100} \bigcirc \frac{3}{3}$$

$$\frac{7}{8} \bigcirc \frac{13}{13}$$

7 Write 3 fractions that are equivalent to $\frac{1}{6}$.

8 Write 3 fractions that are equivalent to $\frac{1}{8}$.

9 **Challenge** Find a rule. Then complete the fractions.

7	2	10	1	5		8		<i>b</i>
49	14	70			21		63	

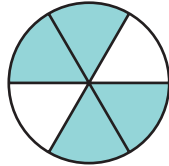
Making Equivalent Fractions

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.2A, 4.2C, 4.7, 4.16B

Complete the fractions to make the sentences true.
Draw pictures to help you complete Problems 3 and 4, if it will help.

1



$$\frac{4}{6} = \frac{2}{\square}$$

$$\frac{4}{6} = \frac{\square}{18}$$

$$\frac{4}{6} = \frac{8}{\square}$$

$$\frac{4}{6} = \frac{\square}{60}$$

2



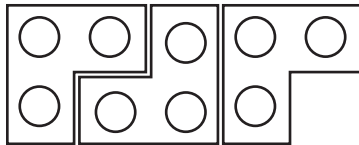
$$\frac{3}{5} = \frac{6}{\square}$$

$$\frac{3}{5} = \frac{9}{\square}$$

$$\frac{3}{5} = \frac{\square}{30}$$

$$\frac{3}{5} = \frac{\square}{25}$$

3



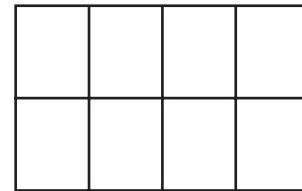
$$\frac{2}{3} = \frac{\square}{6}$$

$$\frac{2}{3} = \frac{20}{\square}$$

$$\frac{2}{3} = \frac{10}{\square}$$

$$\frac{2}{3} = \frac{\square}{21}$$

4



$$\frac{5}{8} = \frac{\square}{16}$$

$$\frac{5}{8} = \frac{15}{\square}$$

$$\frac{5}{8} = \frac{25}{\square}$$

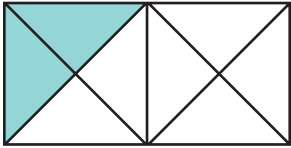
$$\frac{5}{8} = \frac{\square}{80}$$

5 Write 3 fractions that are equivalent to $\frac{4}{5}$.

$\frac{\square}{\square}$	$\frac{\square}{\square}$	$\frac{\square}{\square}$
---------------------------	---------------------------	---------------------------

Use = or ≠ to show whether the fractions are equal or not.

6



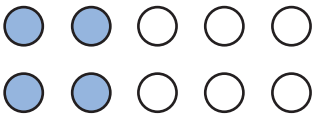
$$\frac{2}{8} \bigcirc \frac{1}{4}$$

$$\frac{2}{8} \bigcirc \frac{3}{8}$$

$$\frac{2}{8} \bigcirc \frac{1}{2}$$

$$\frac{1}{2} \bigcirc \frac{4}{8}$$

7



$$\frac{4}{10} \bigcirc \frac{2}{5}$$

$$\frac{4}{10} \bigcirc \frac{4}{5}$$

$$\frac{1}{2} \bigcirc \frac{5}{10}$$

$$\frac{3}{5} \bigcirc \frac{1}{4}$$



8 In the fourth grade, $\frac{1}{5}$ of the students were absent on Monday and $\frac{2}{10}$ were absent on Tuesday. Were the numbers of absent students on the two days the same or different? Explain how you found the answer.

9 **Challenge** Find a rule. Then complete the fractions.

$\frac{2}{12}$	$\frac{10}{60}$	$\frac{1}{6}$	$\frac{3}{\quad}$	$\frac{8}{\quad}$	$\frac{\quad}{24}$	$\frac{\quad}{54}$	$\frac{\quad}{120}$	$\frac{n}{\quad}$
----------------	-----------------	---------------	-------------------	-------------------	--------------------	--------------------	---------------------	-------------------

10 **Challenge** Find a rule. Then complete the fractions.

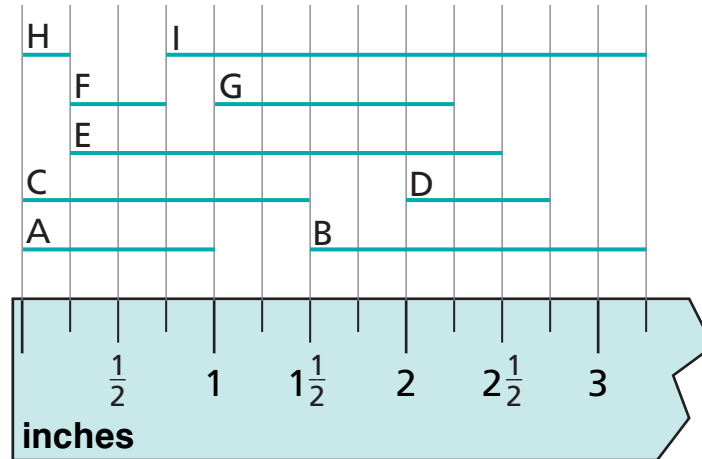
$\frac{6}{16}$	$\frac{15}{40}$	$\frac{3}{8}$	$\frac{9}{\quad}$	$\frac{\quad}{56}$	$\frac{\quad}{32}$	$\frac{30}{\quad}$	$\frac{\quad}{160}$	$\frac{3 \times n}{\quad}$
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Fractions in Measurement

NCTM Standards 1, 2, 6, 7, 8, 9, 10

TEKS 4.2C, 4.10, 4.11A

- 1 Record the lengths of these lines.

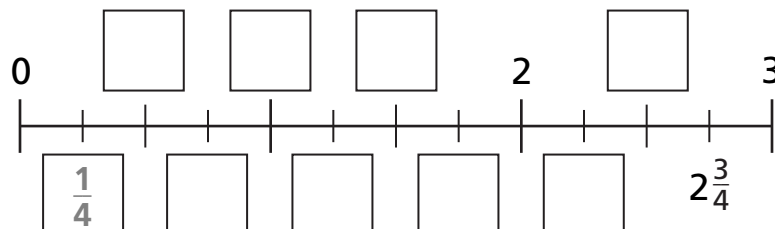


Lengths:

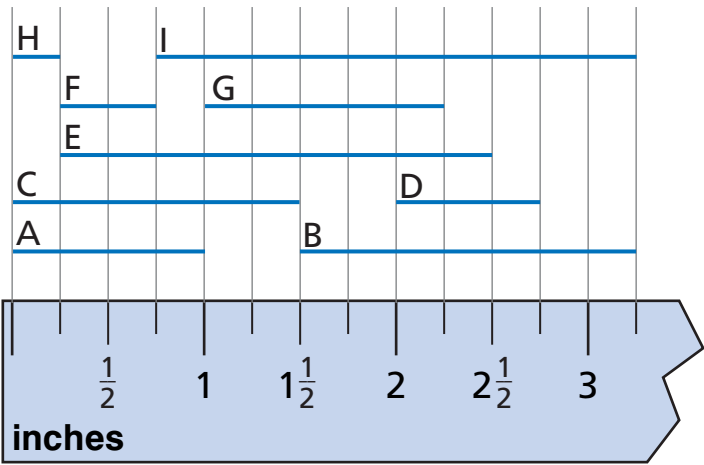
A: _____ inches D: _____ inches G: _____ inches
 B: _____ inches E: _____ inches H: _____ inches
 C: _____ inches F: _____ inches I: _____ inches

- 2 Put all of the lengths above in order from least to greatest.

- 3 Locate each measurement from above on the number line below.



Use this drawing of the lines from the previous page to answer the questions below.



4 Sum of lengths:

H and F: _____ inches

A and G: _____ inches

F and I: _____ inches

C and B: _____ inches

H and E: _____ inches

A and I: _____ inches

5 Differences between lengths:

I and B: _____ inches

C and A: _____ inches

A and H: _____ inches

C and H: _____ inches

E and F: _____ inches

I and G: _____ inches

Modeling Addition of Fractions

NCTM Standards 1, 2, 6, 7, 8, 9, 10

TEKS 4.2D, 4.15A

1

$$1 \text{ sixth} + 3 \text{ sixths} = \underline{\hspace{2cm}} \text{ sixths}$$

2

$$4 \text{ sixths} + 1 \text{ sixth} = \underline{\hspace{2cm}} \text{ sixths}$$

3

$$4 \text{ sixths} + 2 \text{ sixths} = \underline{\hspace{2cm}} \text{ sixths}$$

4

$$3 \text{ sixths} + \underline{\hspace{2cm}} \text{ sixths} = 5 \text{ sixths}$$

5

$$\frac{1}{2} + \frac{1}{2} = \frac{\boxed{}}{\boxed{}}$$

6

$$\frac{2}{6} + \frac{\boxed{}}{6} = \frac{3}{6}$$

7

$$\frac{1}{6} + \frac{1}{6} = \frac{\boxed{}}{\boxed{}}$$

8

$$\frac{4}{6} + \frac{3}{6} = \frac{\boxed{}}{6}$$

9

$$4 \text{ sixths} - 2 \text{ sixths} = \underline{\hspace{2cm}} \text{ sixths}$$

10

$$5 \text{ sixths} - 1 \text{ sixth} = \underline{\hspace{2cm}} \text{ sixths}$$

11

$$6 \text{ sixths} - 3 \text{ sixths} = \underline{\hspace{2cm}} \text{ sixths}$$

12

$$8 \text{ sixths} - \underline{\hspace{2cm}} \text{ sixths} = 1 \text{ sixth}$$

13

$$\frac{5}{6} - \frac{2}{6} = \frac{\boxed{}}{6}$$

14

$$\frac{2}{6} - \frac{0}{6} = \frac{2}{\boxed{}}$$

15

$$\frac{\boxed{}}{6} - \frac{1}{6} = \frac{3}{6}$$

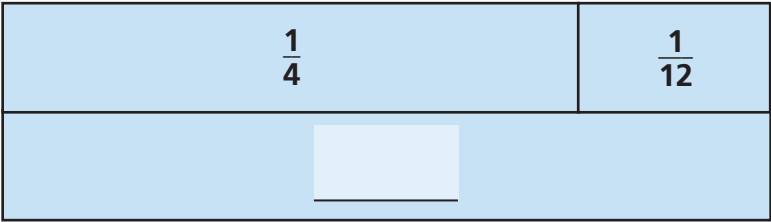
16

$$\frac{6}{6} - \frac{\boxed{}}{6} = \frac{1}{6}$$

Use these fractional pieces of a foot to complete the number sentences below.



17



1

12

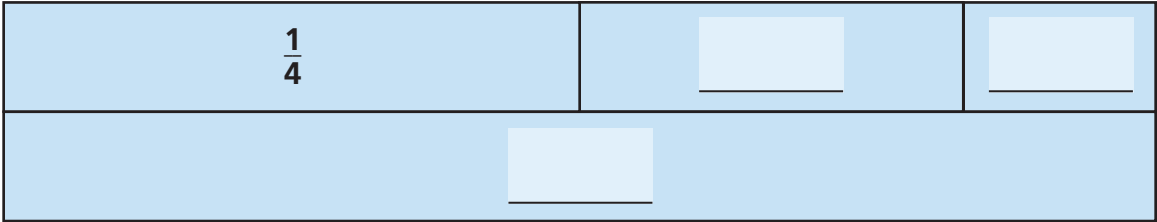
+

1

4

=

18



1

4

+

+

=

19 Challenge Count by $\frac{2}{7}$ to fill in the missing numbers.

0

,

$\frac{2}{7}$

,

$\frac{4}{7}$

,

$\frac{}{7}$

,

$1\frac{1}{7}$

,

$1\frac{}{7}$

,

$1\frac{5}{7}$

,

,

$2\frac{2}{7}$

,

,

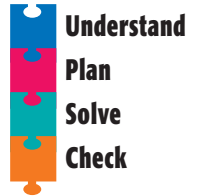
,

...

Problem Solving Strategy

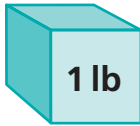
Draw a Picture

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.2B, 4.14B, 4.14C, 4.16A


Use the large white space to draw pictures if you want.

1



1 pound = 16 ounces

$\frac{1}{2}$ of a pound = _____ ounces

$\frac{1}{4}$ of a pound = _____ ounces

$\frac{3}{4}$ of a pound = _____ ounces

$\frac{1}{8}$ of a pound = _____ ounces

$\frac{5}{8}$ of a pound = _____ ounces

2

Ben and Jasmine shared a small cake that was cut into 6 equal pieces. Jasmine ate $\frac{1}{2}$ of the cake. Ben ate $\frac{1}{3}$ of the cake. What fraction of the cake was left?

3

Three kids divided 4 small pizzas equally. How much pizza did each kid get?

Problem Solving Test Prep

Choose the correct answer.

- 1 Nico is planting a pattern of plants in his flower garden. The first row has 10 plants, the second row has 15 plants, and the third row has 20 plants. If this pattern continues, how many plants will Nico need in all to plant six rows of plants?

A. 35 plants C. 125 plants
B. 60 plants D. 135 plants

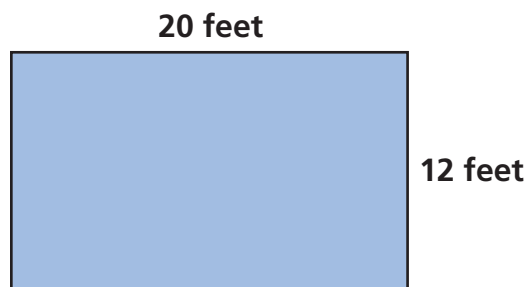
- 2 Kiki is putting a fence around a rectangular part of her backyard that measures 14 feet by 9 feet. What is the area of the fenced part of the backyard?

A. 23 square feet
B. 46 square feet
C. 126 square feet
D. 276 square feet

- 3 Melanie is drawing a figure with 4 sides and 4 angles. She wants her figure to have at least one acute angle. Which figure could Melanie draw?

A. right triangle C. square
B. trapezoid D. rectangle

- 4 Below is a diagram of Jenny's backyard. What is the perimeter of Jenny's backyard?



A. 64 feet C. 32 feet
B. 40 feet D. 24 feet

Show What You Know

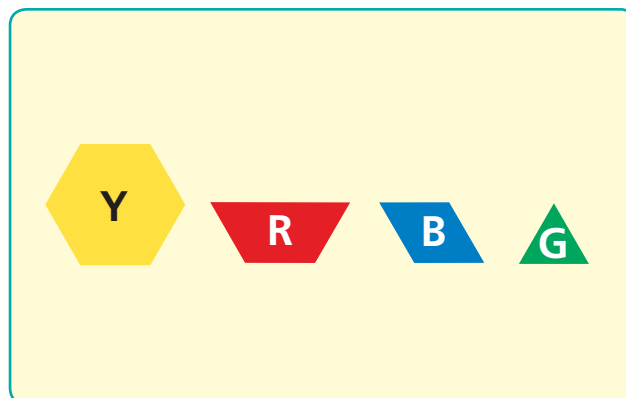
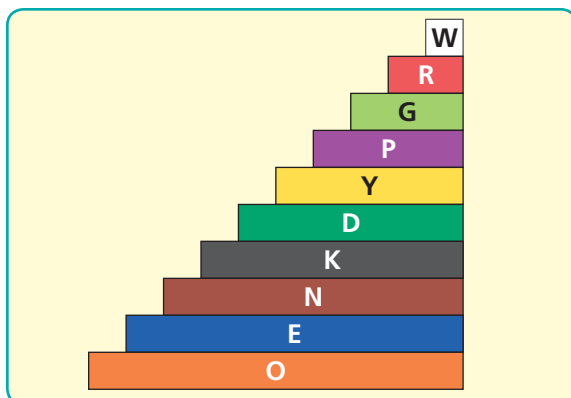
Solve each problem. Explain your answer.

- 5 Julio measured the length of a piece of yarn to be 3 feet long. How long is the piece of yarn in inches?

- 6 Draw a picture to find $\frac{3}{8} + \frac{2}{8}$.

A large empty rectangular box with a rounded border, intended for drawing a picture to solve the problem.

Use these pictures to answer the questions below. Lessons 1, 2, 3, 4, and 11



1 If $O = 1$, then $Y =$ _____

2 If $R = \frac{1}{2}$, then $D =$ _____

3 If _____ $= \frac{1}{2}$, then $N = 1$

4 If $E = 1$, then $O =$ _____

5 If $Y = 1$, then $B =$ _____

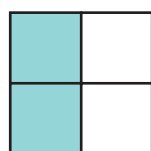
6 If $R = 1$, then $G =$ _____

7 If $R = 1\frac{1}{4}$, then $Y =$ _____

8 If $G = \frac{1}{4}$, then $B =$ _____

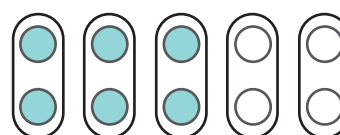
Cross out the one or two fractions that do not represent the shaded portion of each picture. Lessons 8 and 9

Example



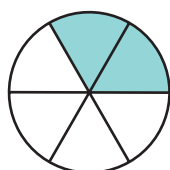
$\frac{1}{2}$ ~~$\frac{2}{2}$~~ $\frac{2}{4}$ ~~$\frac{1}{3}$~~

9



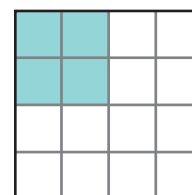
$\frac{3}{5}$ $\frac{6}{4}$ $\frac{6}{10}$ $\frac{4}{6}$

10



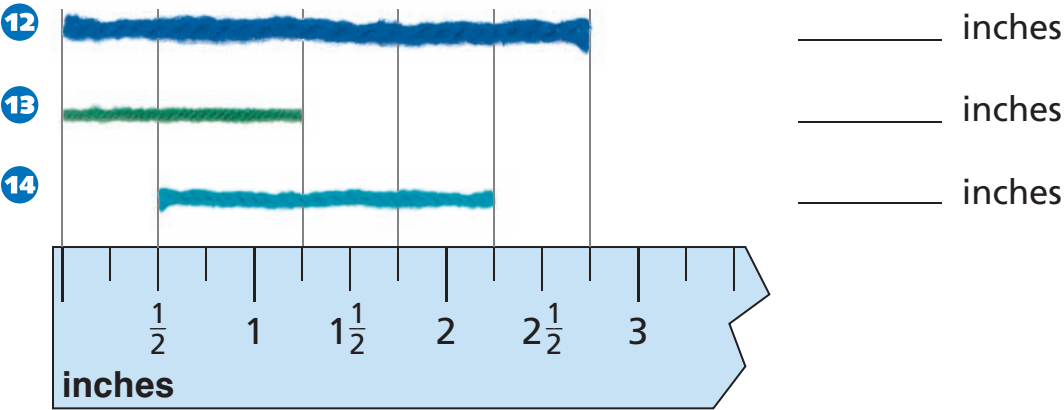
$\frac{2}{4}$ $\frac{1}{3}$ $\frac{2}{6}$ $\frac{1}{6}$

11



$\frac{1}{4}$ $\frac{2}{8}$ $\frac{4}{12}$ $\frac{4}{16}$

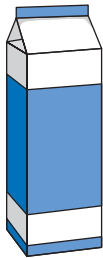
How long is each piece of string? Lessons 5 and 10



Write $<$, $>$, or $=$ to make each statement true. Lessons 6 and 7

15 $\frac{2}{7} \bigcirc \frac{5}{7}$	16 $\frac{2}{3} \bigcirc \frac{1}{2}$	17 $\frac{1}{4} \bigcirc \frac{1}{10}$
18 $\frac{3}{8} \bigcirc \frac{7}{8}$	19 $\frac{1}{2} \bigcirc \frac{8}{16}$	20 $\frac{3}{4} \bigcirc \frac{1}{3}$

Use the space to draw pictures if you want. Lesson 12



1 quart = 32 ounces

- 21 $\frac{1}{2}$ of a quart = _____ ounces
- 22 $\frac{1}{4}$ of a quart = _____ ounces
- 23 $\frac{5}{8}$ of a quart = _____ ounces

Place Value

NCTM Standards 1, 2, 6, 7, 8, 9, 10

TEKS 4.1A, 4.16B

Write the number.

- 1 three hundred sixty thousand, two hundred seven
-

- 2 six million, fifty-four thousand, nine
-

- 3 two million, one hundred eight thousand, seventy-six
-

- 4 My tens digit is 9. My ones digit is 7. My thousands digit is 5.

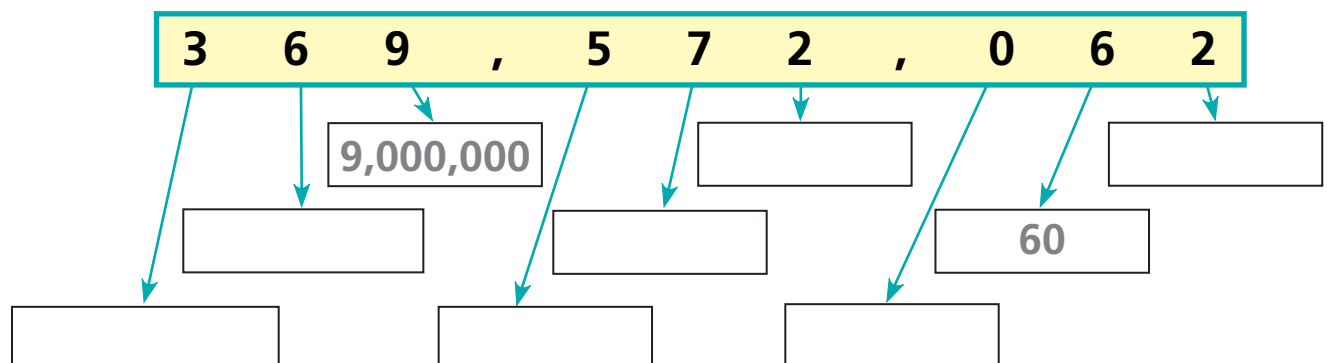
My millions digit is 1. My hundred millions digit is 7.

All of my other digits are 0.

- 5
- $8,000,000 + 500,000 + 7,000 + 900 + 4 =$
-

- 6
-
- 00,000 +
-
- 0,000 +
-
- 0,000 +
-
- 00 +
-
- 0 +
-
- = 793,065

- 7 Write the value of each digit.



Fill in $<$, $=$, or $>$.

8 1,250 1,520

9 787,099 787,100

10 6,135,000 6,153,000

11 2,005,607 2,010,580

12 989,000 979,956

13 1,650,207 1,506,720

Put these numbers in order from smallest to largest:

1,702,000 10,702,000 6,503 2,999 70,000
2,500 905,608 859,990 70,030

14

15

16

17

18

19

20

21

22



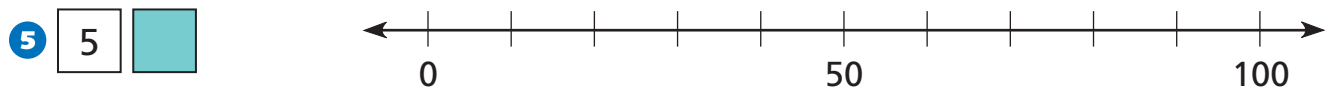
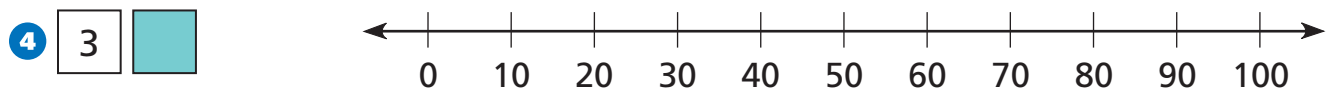
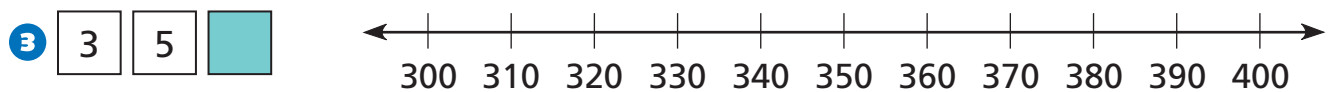
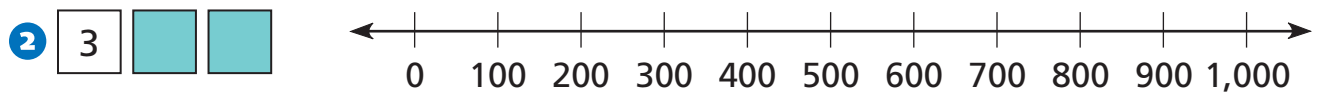
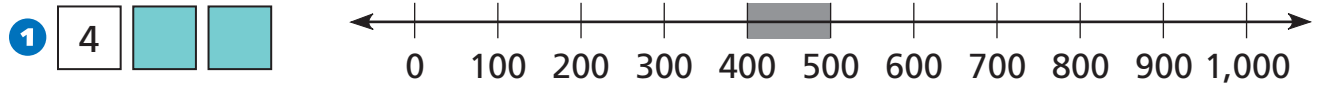
23 Challenge Explain how you decided on the order of the numbers in Problems 14–22.

Introducing Decimals

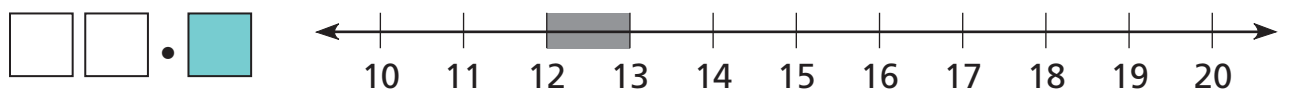
NCTM Standards 1, 2, 6, 7, 8, 9, 10

TEKS 4.10, 4.16B

Shade part of each number line to show the space between two numbers where each number belongs.



9 Now use the shading on the number line to find the tens digit and the ones digit in the number.





- 10 Use a calculator to multiply these numbers between 4 and 5.

Numbers between 4 and 5	Numbers multiplied by themselves
4	
4.1	
4.2	
4.3	
5	

Fran multiplied a number by itself and got 20. Her number must be between two numbers in the left column above.

Her number must be between _____ and _____.

How do you know? _____

- 11 **Challenge** Name 2 numbers that are between 1 and 2.

_____ and _____

- 12 **Challenge** Name 2 numbers that are between the numbers you wrote in the problem to the left.

_____ and _____

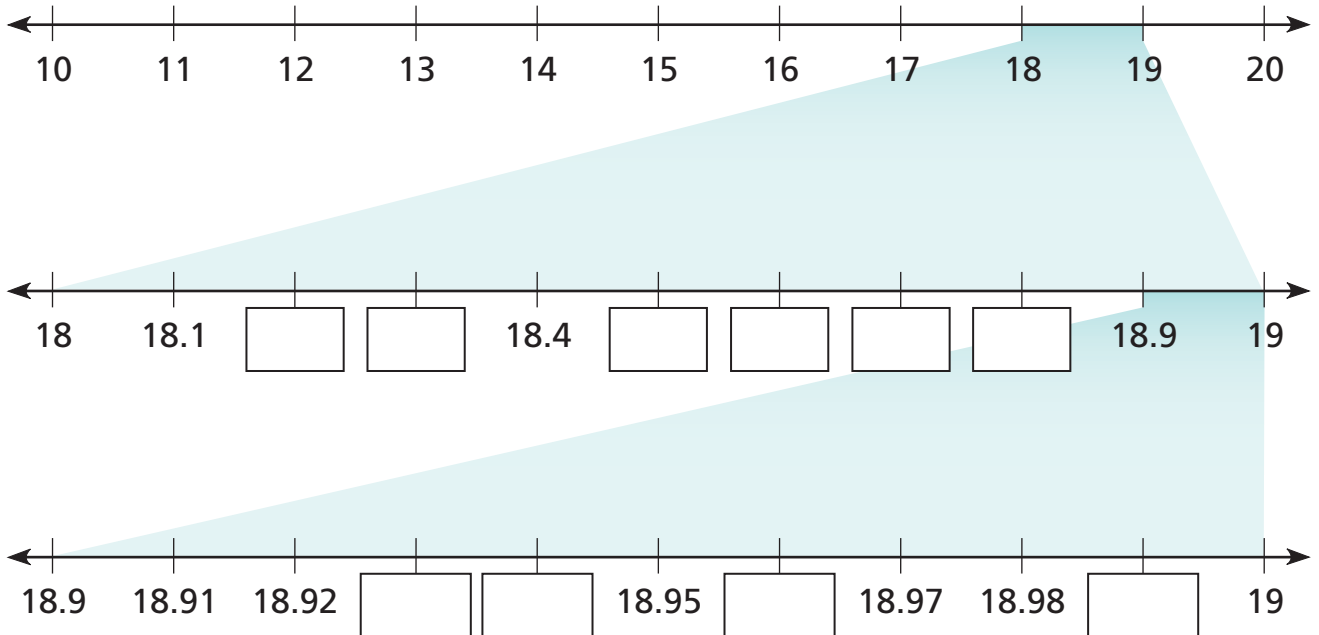
Zooming in on the Number Line

NCTM Standards 1, 2, 6, 7, 8, 9, 10

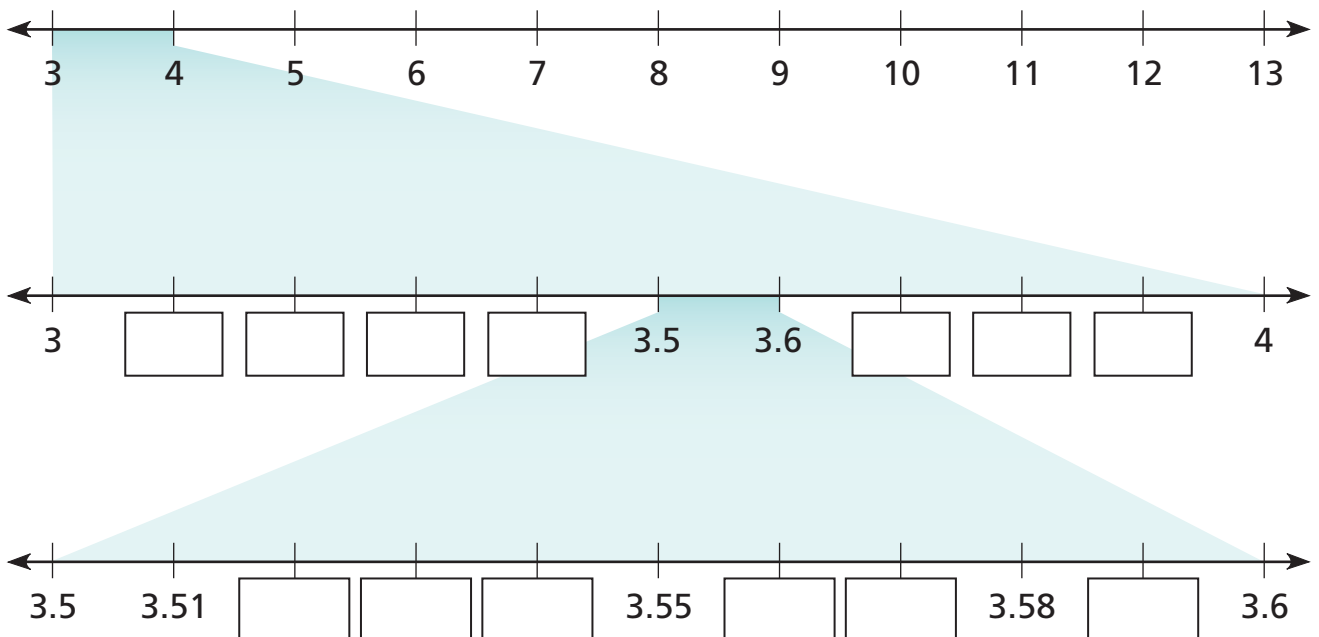
 TEKS 4.1B, 4.10, 4.16B

Fill in the missing numbers.

1



2





- 3 Use a calculator to multiply these numbers between 6.5 and 6.6.

Numbers between 6.5 and 6.6	Numbers multiplied by themselves
6.5	
6.51	
6.52	
6.6	

Paul multiplied a number by itself and got 43. His number must be between two numbers in the left column.

His number must be between _____ and _____.
How do you know?

- 4 **Challenge** Name three numbers between 3.65 and 3.66.

<input type="text"/>	<input type="text"/>	<input type="text"/>
----------------------	----------------------	----------------------

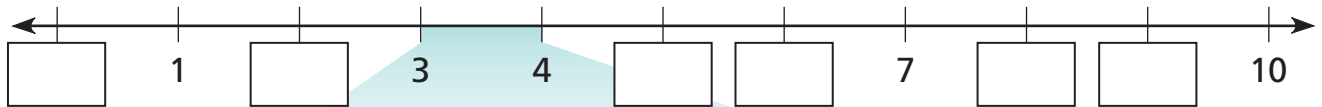
Decimals on the Number Line

NCTM Standards 1, 2, 6, 7, 8, 9, 10

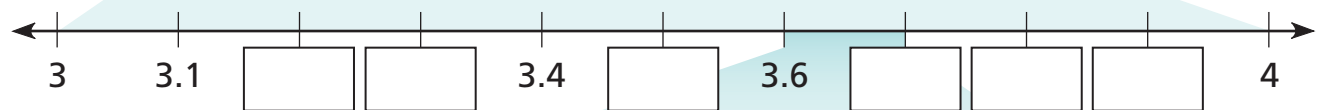
TEKS 4.1B, 4.10

Fill in the missing numbers.

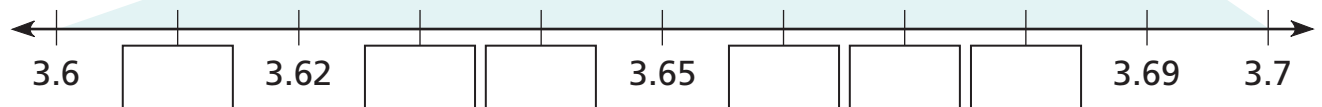
1



2



3

4 Use the number lines to compare the numbers. Write $<$ or $>$.

8 $>$ 5

3.2 \bigcirc 3.6

3.1 \bigcirc 3.4

3.8 \bigcirc 3.1

3.7 \bigcirc 3.6

3.5 \bigcirc 4

3.7 \bigcirc 3

3.7 \bigcirc 3.09

3.7 \bigcirc 4

3.7 \bigcirc 7

3.68 \bigcirc 3.7

3.64 \bigcirc 3.8

3.62 \bigcirc 3.7

3.64 \bigcirc 3.69

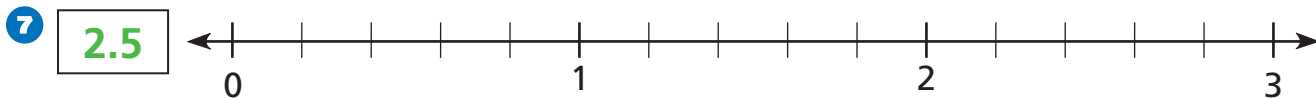
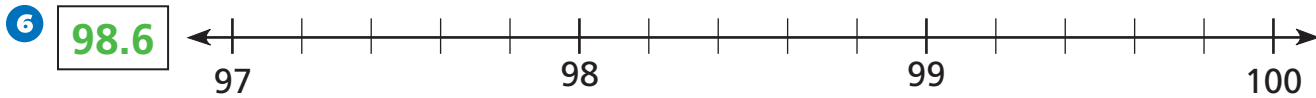
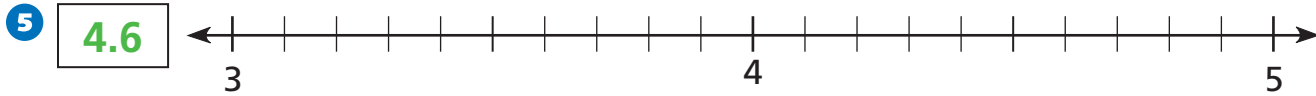
3.64 \bigcirc 3.66

3.69 \bigcirc 3.6

3.69 \bigcirc 3

3.64 \bigcirc 4

Write an \times to mark each number on the number line.



- 8 Abby, Julie, Rachel, and Sam were in a swimming race.
These are their times:

Abby	27.03 seconds
Julie	27.3 seconds
Rachel	26.8 seconds
Sam	27.27 seconds

Who won the race? _____

Who came in 2nd place? _____

Who came in 3rd place? _____

Who came in 4th place? _____

9 Challenge

What number is halfway between 4 and 5? _____

What number is halfway between 4.2 and 4.3? _____

What number is halfway between 4.87 and 4.88? _____

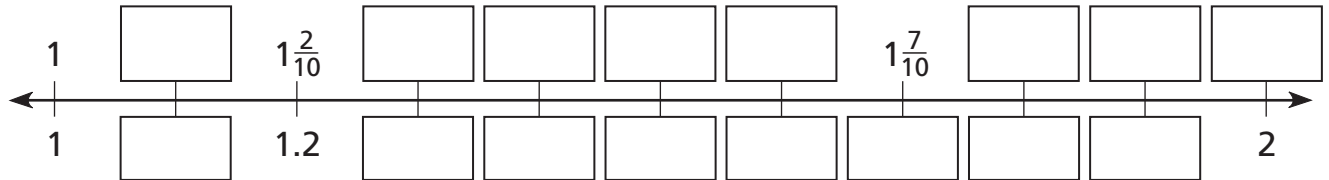
Connecting Fractions and Decimals

NCTM Standards 1, 2, 6, 7, 8, 9, 10

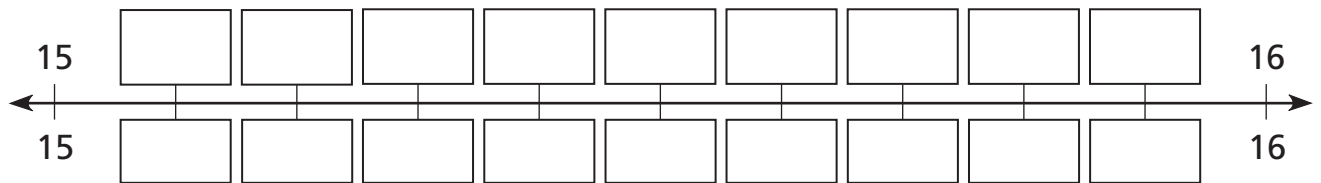
 TEKS 4.1B, 4.2D, 4.4E, 4.10, 4.16B

Label these number line points with both fractions and decimals.

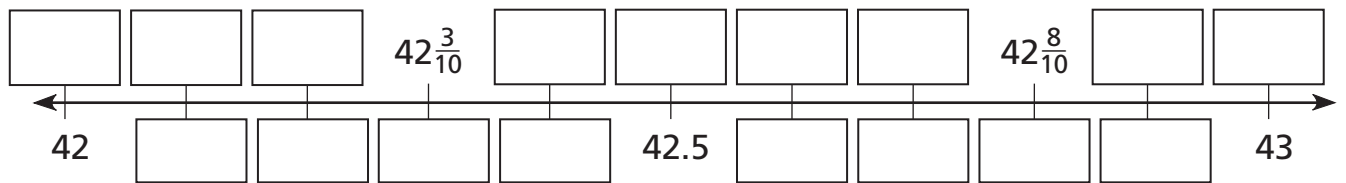
1



2

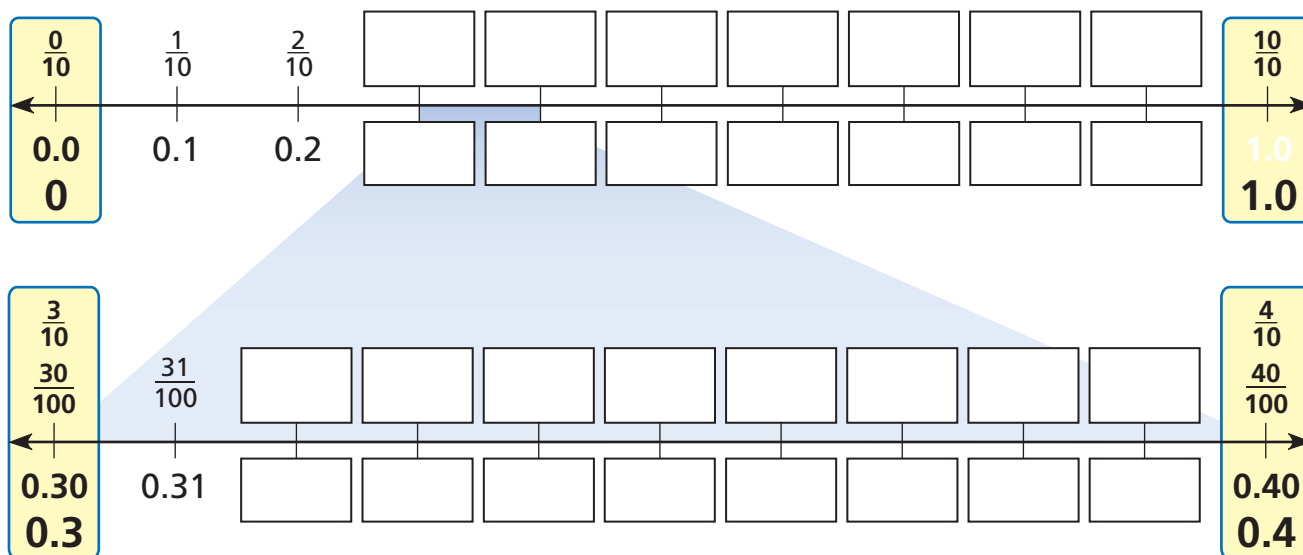


3



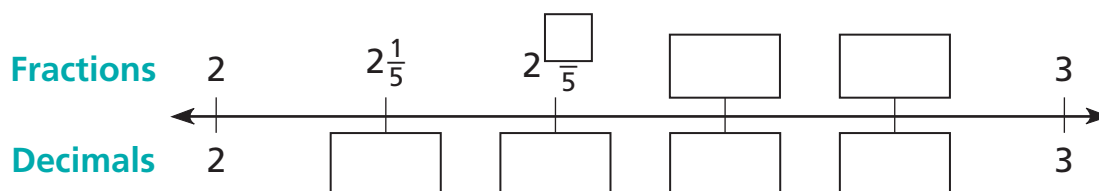
- 4 James and Ge earned \$13 doing yard work together. James said his half of the money was \$6.50. Ge said his half of the money was six and a half dollars. Who was right? Explain your answer.

5 Write the decimals and matching fractions.



6 Which is bigger, $\frac{4}{10}$ or 0.38? How do you know?

7 Challenge



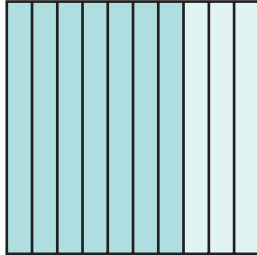
Representing Decimals Using a Grid

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.1B, 4.2D, 4.3B

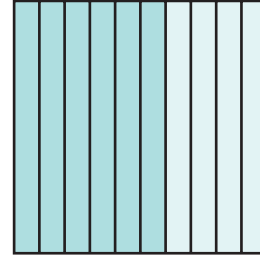
Write the decimal to show what parts of the square are shaded.

1



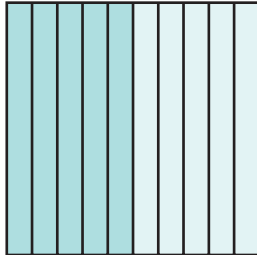
dark	0.7
light	

2



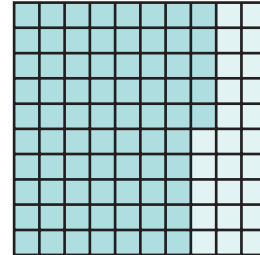
dark	
light	

3



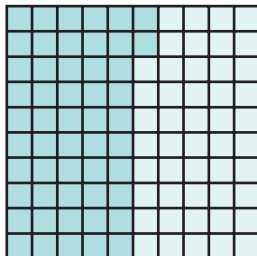
dark	
light	

4



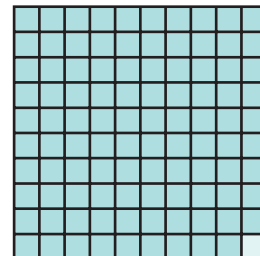
dark	
light	0.25

5



dark	
light	

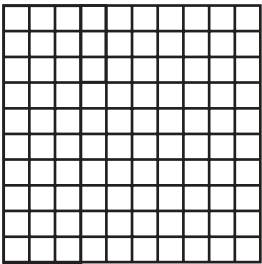
6



dark	
light	

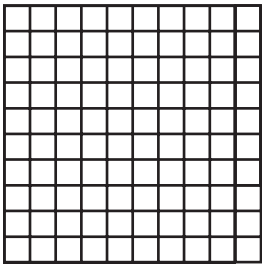
Shade each diagram to match the decimal.

7



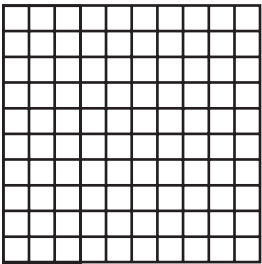
0.33

8



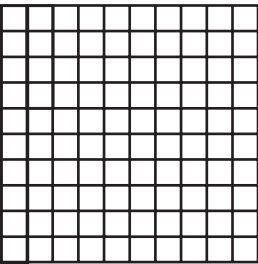
0.97

9



0.3

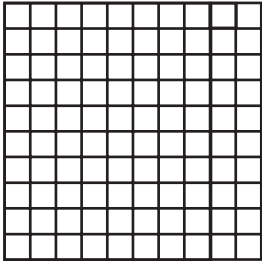
10



0.14

Write the above numbers in order from least to greatest.

11 Keith has \$1.00. He gave 53¢ to Connie, and he bought 4 stickers that cost 7¢ each. Use the grid to figure out how much money Keith has left.



\$0.

12 **Challenge** Put these numbers in order from least to greatest.

$\frac{1}{3}$ 0.50.97 $\frac{3}{4}$ 0.010.1 $\frac{2}{5}$

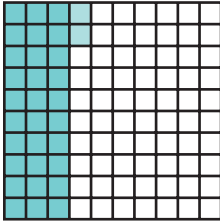
Representing Decimals Using Base-Ten Blocks

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.1B, 4.2D, 4.14D

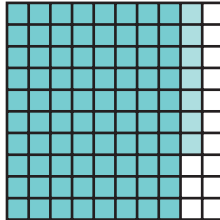
Use the clues to complete the tables.

1



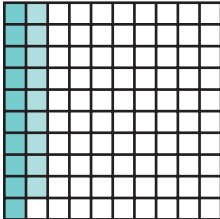
	Dark Shading	Light Shading	Total Shaded	Total Unshaded
Decimal	0.3	0.02		0.68
Fraction	$\frac{3}{10}$	$\frac{2}{100}$	$\frac{32}{100}$	

2



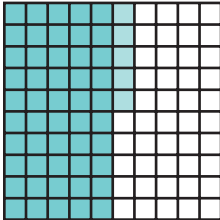
	Dark Shading	Light Shading	Total Shaded	Total Unshaded
Decimal	0.8			
Fraction				

3



	Dark Shading	Light Shading	Total Shaded	Total Unshaded
Decimal				
Fraction				

4



	Dark Shading	Light Shading	Total Shaded	Total Unshaded
Decimal				
Fraction				

Fill in the missing numbers.

5 $0.12 + 0.01 = 0.13$ $+ 0.02 = \boxed{}$ $+ 0.04 = \boxed{}$

6 $0.28 - 0.02 = \boxed{}$ $- 0.01 = \boxed{}$ $- 0.03 = \boxed{}$

7 $1.73 + 0.04 = \boxed{}$ $- 0.05 = \boxed{}$ $+ 0.01 = \boxed{}$

Use the clues to complete the table.

8		Dark Shading	Light Shading	Total Shaded	Total Unshaded
	Decimal				
	Fraction	$\frac{9}{10}$	$\frac{4}{100}$		

9		Dark Shading	Light Shading	Total Shaded	Total Unshaded
	Decimal	0.6	0.07		
	Fraction				

10		Dark Shading	Light Shading	Total Shaded	Total Unshaded
	Decimal	0.4		0.46	
	Fraction				

Compare the decimals. Write $<$, $>$, or $=$.

11

0.6 0.62

0.79 0.7

0.43 0.4

0.5 0.50

12

0.2 0.19

0.36 0.2

0.47 0.8

0.06 0.1

13

0.11 0.1

0.01 0.1

0.01 0.10

0.10 0.1

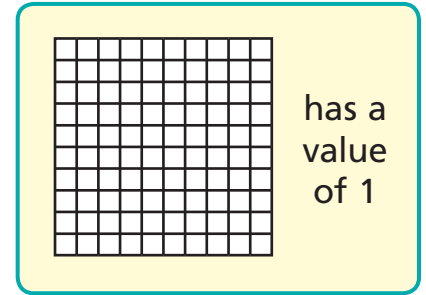
14 **Challenge** Write the numbers from problem 12 in order from smallest to largest.

Adding Decimals

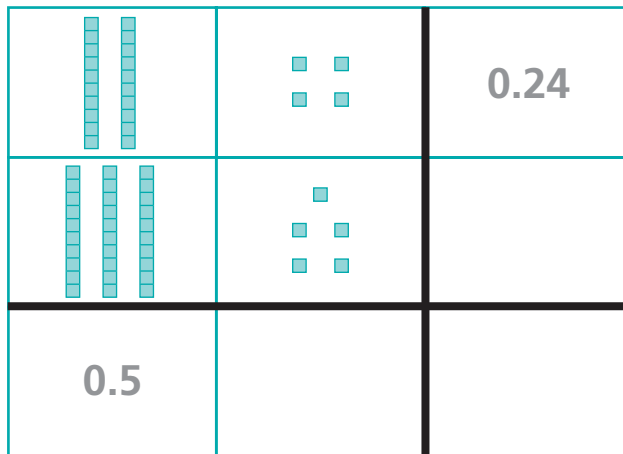
NCTM Standards 1, 2, 6, 7, 8, 9, 10

TEKS 4.2D, 4.3B

Use the clues to fill in the missing numbers.
Use blocks to help you.

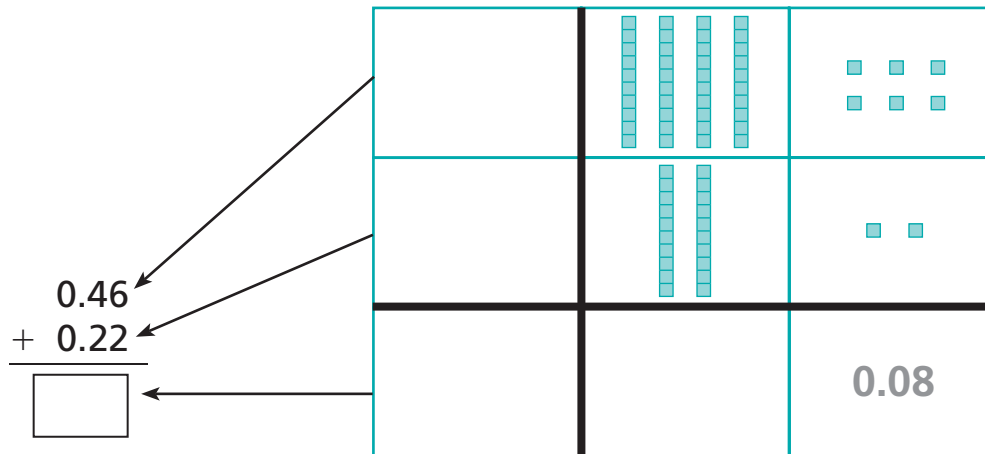


1



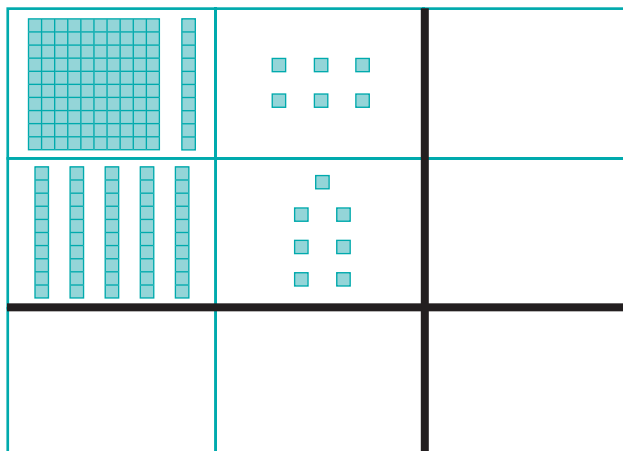
$$\begin{array}{r} 0.24 \\ + 0.35 \\ \hline \end{array}$$

2




$$\begin{array}{r} 0.46 \\ + 0.22 \\ \hline \end{array}$$

3



$$\begin{array}{r} 1.16 \\ + \square \\ \hline \square \end{array}$$

4



has a
value
of 1

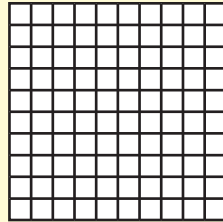
5

$$\begin{array}{r} 0.48 \\ + \\ \hline \end{array}$$

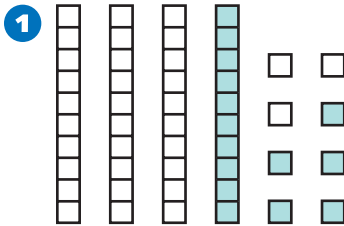
Subtracting Decimals

NCTM Standards 1, 2, 6, 7, 8, 9, 10

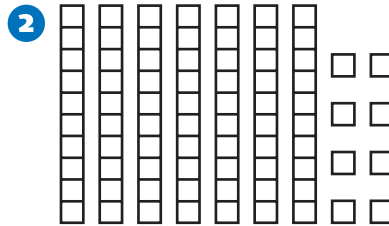
TEKS 4.1B, 4.3B, 4.16B



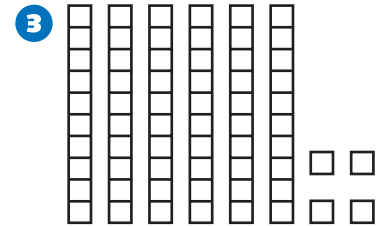
has a value of 1.

Subtract.

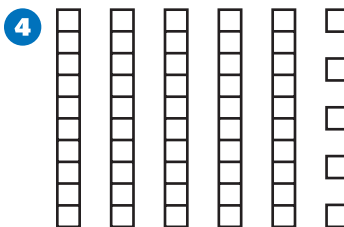
$$\begin{array}{r} 0.48 \\ - 0.15 \\ \hline \boxed{0.33} \end{array}$$



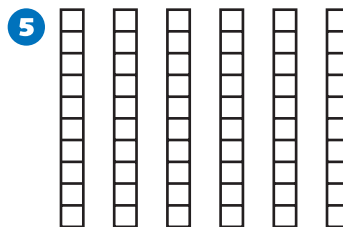
$$\begin{array}{r} 0.78 \\ - 0.36 \\ \hline \boxed{} \end{array}$$



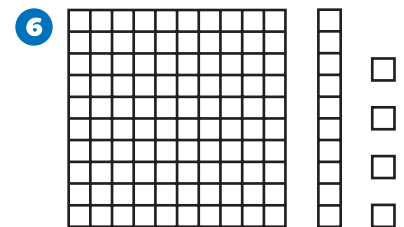
$$\begin{array}{r} 0.64 \\ - 0.29 \\ \hline \boxed{} \end{array}$$



$$\begin{array}{r} 0.55 \\ - 0.48 \\ \hline \boxed{} \end{array}$$



$$\begin{array}{r} 0.6 \\ - 0.24 \\ \hline \boxed{} \end{array}$$



$$\begin{array}{r} 1.14 \\ - 0.73 \\ \hline \boxed{} \end{array}$$



- 7 Stanley and Jeffrey earned \$9.50 mowing lawns. They used the money to buy 2 ice cream cones that each cost \$3.25. The remaining money they shared evenly. How much money will each of them get? Use blocks and pictures to help you. Explain how you found your answer.

$$\begin{array}{r} 8 \quad 2.25 \\ - 1.13 \\ \hline \square \end{array}$$

$$\begin{array}{r} 9 \quad 0.72 \\ - 0.44 \\ \hline \square \end{array}$$

$$\begin{array}{r} 10 \quad 1.35 \\ - 0.41 \\ \hline \square \end{array}$$

$$\begin{array}{r} 11 \quad 0.8 \\ - 0.73 \\ \hline \square \end{array}$$

$$\begin{array}{r} 12 \quad 0.11 \\ - 0.03 \\ \hline \square \end{array}$$

$$\begin{array}{r} 13 \quad 1.48 \\ - 0.96 \\ \hline \square \end{array}$$

14 **Challenge**

$$\begin{array}{r} 1.03 \\ - \square \\ \hline 0.18 \end{array}$$

$$\begin{array}{r} 2.3 \\ - \square \\ \hline 0.71 \end{array}$$

$$\begin{array}{r} 11.24 \\ - \square \\ \hline 4.89 \end{array}$$

Representing Decimals Using Money

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.1B, 4.3B, 4.16B

Use the clues to fill in the missing numbers.

1

Number of dimes	1	3			4	11		19	27	36
Decimal	0.10		0.90	0.80			1.30			

2

Number of pennies	37			1	8		119		207	
Decimal	0.37	0.49	0.18			0.36		1.93		6.35

3

Number of nickels	1			15	20	21			49	59
Decimal	0.05	0.25	0.45		1		1.50	1.65		

4

$$\begin{array}{r} \$0.51 \\ + \$0.49 \\ \hline \end{array}$$

5

$$\begin{array}{r} \$0.96 \\ + \$0.04 \\ \hline \end{array}$$

6

$$\begin{array}{r} \$0.83 \\ + \$0.17 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \quad \$1.00 \\ - \$0.73 \\ \hline \square \end{array}$$

$$\begin{array}{r} 8 \quad \$1.00 \\ - \$0.89 \\ \hline \square \end{array}$$

$$\begin{array}{r} 9 \quad \$1.00 \\ - \$0.92 \\ \hline \square \end{array}$$

$$\begin{array}{r} 10 \quad \$1.30 \\ + \square \\ \hline \$2.00 \end{array}$$

$$\begin{array}{r} 11 \quad \$1.03 \\ + \square \\ \hline \$2.00 \end{array}$$

$$\begin{array}{r} 12 \quad \$0.71 \\ + \square \\ \hline \$2.00 \end{array}$$

$$\begin{array}{r} 13 \quad \$10.00 \\ - \square \\ \hline \$7.28 \end{array}$$

$$\begin{array}{r} 14 \quad \$20.00 \\ - \square \\ \hline \$12.72 \end{array}$$

Challenge Use words, pictures, and numbers to show how you found your answers.

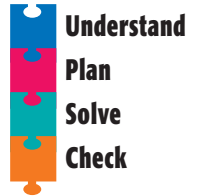
- 15 Letitia is collecting money for her youth group. Her goal is to have \$13.50 by Sunday. She's set aside \$6.73 of her own money, and her brother said he'd contribute the rest. How much will he need to give her?

- 16 Joneau and Sonya are having a contest to see who can save the most money. Joneau has \$15.68 saved up. When Sonya counts her money, she finds out that Joneau has \$3.29 more than she does. How much money has Sonya saved?

Problem Solving Strategy

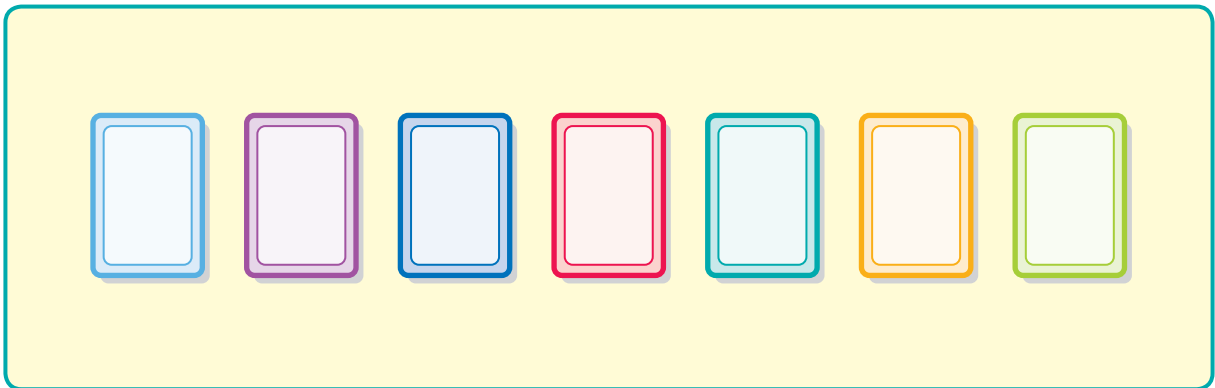
Act It Out

NCTM Standards 1, 2, 6, 8, 9, 10

 TEKS 4.1B, 4.3B, 4.14A, 4.14B, 4.14C, 4.14D, 4.16B


- 1 Andy gave the cashier a \$5 bill to pay for a bag of chips that cost \$1.18 and a bottle of juice that cost \$0.97. How much change did the cashier give him?

- 2 Loni dealt out 100 cards to her 7 friends so that the friends could play a game. How many cards did each friend get, and how many cards were left over?



Each friend got _____ cards. There were _____ cards left over.

- 3 Four students lined up from shortest to tallest. Their heights were 4.17 feet, 4.1 feet, 4.71 feet, and 4.7 feet. Celia was taller than Mora but shorter than Soong. Huong was 4.17 feet tall. What was each student's height?

Celia: _____

Mora: _____

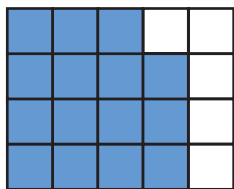
Soong: _____

Huong: _____

Problem Solving Test Prep

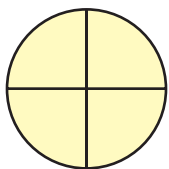
Choose the correct answer.

- 1 Which number sentence can be represented by the picture?



- A. $(3 \times 3) + 3 = 12$
- B. $(3 \times 4) + 3 = 15$
- C. $(4 \times 4) + 3 = 19$
- D. $(4 \times 5) + 3 = 23$

- 3 Irina begins making a fair spinner by drawing the figure shown here. Which could NOT be the final number of sections on the spinner if she continues to divide the sections equally?

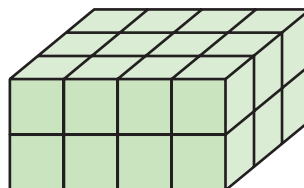


- A. 6
- B. 8
- C. 12
- D. 16

- 2 Which quadrilateral has more than one line of symmetry?



- 4 What is the volume of the box in cubic units?



- A. 12 cubic units
- B. 18 cubic units
- C. 24 cubic units
- D. 30 cubic units

Show What You Know

Solve each problem. Explain your answer.

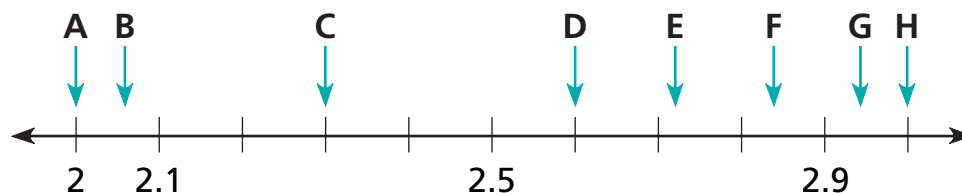
- 5 Ms. Ford buys 6 packages of hamburger rolls. Each package costs \$1.49. She pays with a \$10 bill. The clerk gives her \$2.06 in change. Is the clerk correct? Explain.

- 6 Ramon folds a square sheet of paper in half, in half again, and then in half one more time. Then he unfolds it. What fraction of the paper is each of the smallest sections? Explain.

Review/Assessment

NCTM Standards 1, 2, 6, 7, 8, 9, 10

Write the letter that matches each number's location on the number line. [Lessons 1–4](#)



1 2.3 _____

2 2.06 _____

3 2.72 _____

4 2.94 _____

Complete the table. [Lesson 5](#)

	5	6	7
Fraction		$4\frac{48}{100}$	
Decimal	0.3		5.03

Add or subtract. [Lessons 8, 9](#)

8

$$\begin{array}{r} 1.25 \\ + 1.06 \\ \hline \end{array}$$

9

$$\begin{array}{r} 0.43 \\ - 0.37 \\ \hline \end{array}$$

Solve. Lessons 3–7, 10

- 10 Four students ran 100 yards. Their times, in seconds, are 12.17, 12.1, 12.71, and 12.70. Write their times in order from fastest to slowest.

_____ least _____ greatest

- 11 Luis spent \$9.47 at the grocery store. He paid for his items with a \$20 bill. How much change did he receive?

Compare the numbers. Lessons 3–7

12 9,908,302 ○ 9,980,302

13 3.78 ○ 3.7

14 1,301,000 ○ 1,300,792

15 0.2 ○ 0.20

Solve. Lessons 8, 10

- 16 Kaitlyn bought two watermelons. One weighed 6.37 pounds and the other weighed 8.58 pounds. What was the total weight of the two watermelons?

- 17 Latoria bought a new notebook for \$2.59 and a new pen for \$0.95. She paid the cashier \$4.00. What coins did she receive as change? Show your work.

Computing with Time and Money

NCTM Standards 1, 2, 6, 7, 8, 9, 10

TEKS 4.3B, 4.4D, 4.4E

Complete the tables and number sentences.

1

Weeks	1	2	3	4	5
Days	7				

2

Hours	1	2	3	4	5
Minutes	60				

3

Dimes	1	2	3	4	5
Nickels	2				

4

Dollars	1	2	3	4	5
Quarters	4				

5



+



=



\$1.50

+

=

6



=



=

7 4 nickels + 3 dimes = ____¢

8 2 weeks × 3 = ____ days

9 13 days + 8 days = ____ weeks

10 1 nickel × 4 = ____¢

11 2 weeks - 9 days = ____ days

12 30 minutes × 4 = ____ hours

13 7 nickels + 9 nickels = ____ dimes

14 1 hour ÷ 2 = ____ minutes

15 80 minutes + 40 minutes = ____ hours

16 1 hour ÷ 4 = ____ minutes

Find the missing numbers.

17 $9¢ + 18¢ = \underline{\hspace{2cm}}$

18 $\$1.18 + \underline{\hspace{2cm}} = \1.93

19 $\$3.00 - \$2.50 = \underline{\hspace{2cm}}$

20 $\underline{\hspace{2cm}} - \underline{\hspace{2cm}} = 27¢$

21 $\underline{\hspace{2cm}} + 27¢ = \1.00

22 $25¢ \times 7 = \underline{\hspace{2cm}}$

23 $75¢ + \underline{\hspace{2cm}} = \1.50

24 $50¢ \times 2 = \underline{\hspace{2cm}}$

25 $\$2.00 - \$1.25 = \underline{\hspace{2cm}}$

26 $25¢ \times 3 = \underline{\hspace{2cm}}$

27 $86¢ - \underline{\hspace{2cm}} = 59¢$

28 $\$2.00 \div 4 = \underline{\hspace{2cm}}$

29 $\$2.50 + \underline{\hspace{2cm}} = \7.00

30 $75¢ \times 2 = \underline{\hspace{2cm}}$

31 $\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = 86¢$

32 $\underline{\hspace{2cm}} \div 2 = 75¢$

How many cents?



33 $13¢ + 1 \text{ quarter} = \underline{\hspace{2cm}}$

34 $13¢ \times 4 = \underline{\hspace{2cm}}$

35 $13¢ + 7 \text{ nickels} = \underline{\hspace{2cm}}$

36 $13¢ \times 5 = \underline{\hspace{2cm}}$

37 $13¢ + 3 \text{ quarters} = \underline{\hspace{2cm}}$

38 $13¢ \times 6 = \underline{\hspace{2cm}}$

39 $13¢ + 12 \text{ dimes} = \underline{\hspace{2cm}}$

40 $13¢ \times 7 = \underline{\hspace{2cm}}$

41 Challenge

$7 + \underline{\hspace{2cm}} = 2 \text{ dozen}$

$\underline{\hspace{2cm}} \text{ min} + 48 \text{ min} = 1 \underline{\hspace{2cm}}$

$317 \text{ days} + \underline{\hspace{2cm}} \text{ days} = 1 \underline{\hspace{2cm}}$

$\underline{\hspace{2cm}} \text{ min} + \underline{\hspace{2cm}} = 1 \text{ day}$

Measuring Temperature

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.3A, 4.12A, 4.14A

Use the table to answer the questions below.

	Temperature at 7:00 A.M.	Temperature at noon	Temperature at 7:00 P.M.
Monday	60°F	82°F	71°F
Wednesday	53°F	70°F	65°F
Friday	49°F	76°F	69°F

- 1 On what day and at what time was the coldest temperature measured?

On _____ at 7:00 A.M.

- 2 On what day and at what time was the hottest temperature measured?

On _____ at _____

- 3 Which day had the greatest change in temperature from 7:00 A.M. to noon?

- 4 Which day had the least change in temperature from 7:00 A.M. to noon?

- 5 By how many degrees did the temperature change from noon to 7:00 P.M. on Monday?

_____°F

Solve.

6 If today’s weather forecast is a low of 68°F and a high of 87°F, by how many degrees is the temperature expected to change?

_____°F

7 The temperature dropped 16°F overnight. The temperature in the morning was 45°F. What was the temperature the previous night?

_____°F

8 Joey has a fever of 101.3°F. By how many degrees must his temperature drop to reach the normal body temperature of 98.6°F?

_____°F

9 **Challenge** Erin is going on a trip to visit her aunt. The weather where her aunt lives is always 23°F cooler than it is where Erin lives. Complete the table with the correct temperatures to help Erin decide what to bring on her trip.

	Monday	Tuesday	Wednesday	Thursday	Friday
Erin’s Town	61°F			84°F	72°F
Aunt’s Town		35°F	46°F		

Measuring Length

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.11A, 4.14A

Measurement Scavenger Hunt

Use a ruler to find things in your classroom that match these descriptions. Write the length of each object below its name.

- 1** something longer than your foot

Object: _____

Length: _____

- 2** something shorter than 2 inches

Object: _____

Length: _____

- 3** something a little longer than 6 inches

Object: _____

Length: _____

- 4** something about 1 inch wide

Object: _____

Length: _____

- 5** something about 2.5 centimeters wide

Object: _____

Length: _____

- 6** something shorter than your pinkie finger

Object: _____

Length: _____

- 7** something longer than 1 foot but shorter than 2 feet

Object: _____

Length: _____

- 8** something longer than 20 centimeters but shorter than 25 centimeters

Object: _____

Length: _____

- 9** something about the length of your thumb

Object: _____

Length: _____

Use a ruler and estimate to find things in your classroom that match these descriptions.

<div>10 something taller than you</div> <div>Object: _____</div>	<div>11 something taller than your teacher</div> <div>Object: _____</div>	<div>12 something a little shorter than 2 feet</div> <div>Object: _____</div>
<div>13 something about 10 centimeters long</div> <div>Object: _____</div>	<div>14 something about 1 foot long</div> <div>Object: _____</div>	<div>15 something longer than 5 feet</div> <div>Object: _____</div>
<div>16 something about 1 yard long</div> <div>Object: _____</div>	<div>17 something about 100 centimeters long</div> <div>Object: _____</div>	<div>18 something about 3 feet long</div> <div>Object: _____</div>

<div>19 Challenge</div> <div>something longer than 1 foot but shorter than 100 centimeters</div> <div>Object: _____</div>	<div>20 Challenge</div> <div>something longer than 2 centimeters but shorter than 1 foot</div> <div>Object: _____</div>	<div>21 Challenge</div> <div>something longer than 1 meter but shorter than 3 yards</div> <div>Object: _____</div>
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Measuring in Inches, Feet, and Yards

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.11A, 4.11B

Complete the tables and number sentences.

1	Feet	$\frac{1}{2}$	1	2	3	4
	Inches					

Weeks	1	2	3	4	5
Days					

Hours	$\frac{1}{2}$	1	2	3	4
Minutes					

Yards	$\frac{1}{3}$	1	2	3	4
Feet					

2 2 feet = _____ inches

2 feet + 8 inches = _____ inches

3 1 foot = _____ inches

1 foot \div 2 = _____ inches

4 1 yard = _____ feet

1 yard - 1 foot = _____ feet

5 5 yards = _____ feet

5 yards - 9 feet = _____ feet

Estimate the length of each line. Then measure each line with a ruler to find the exact length.

6 Estimate: _____ inches 

Exact: _____ inches

7 Estimate: _____ inches 

Exact: _____ inches

Complete the tables and number sentences.

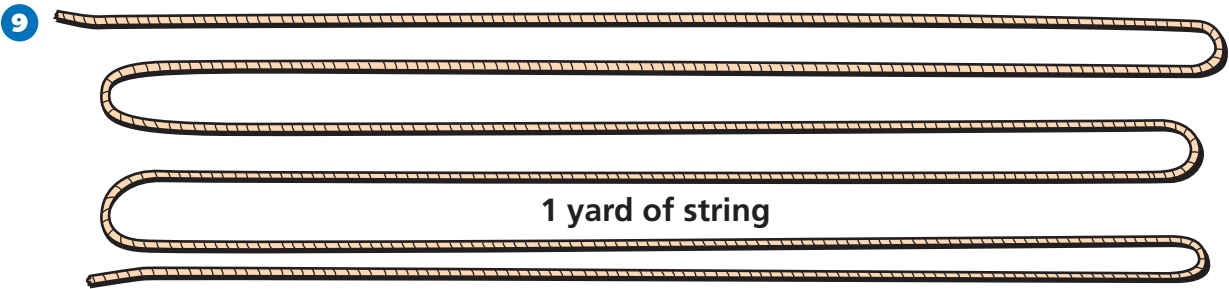
8

Yards	0	1	2	3	4
Feet	0	3			

Feet	2	4	6	10	16
Feet					

Feet	0	1	2	3	4
Inches					

Feet	2		12	3	20
Inches		120			



1 yard + 2 feet = _____ feet

1 yard + 4 inches = _____ inches

1 yard – 1 inches = _____ inches

1 yard – 6 inches = _____ inches

1 yard + 1 foot = _____ inches

1 yard × 3 = _____ feet

1 yard × 2 = _____ feet

1 yard ÷ 3 = _____ feet

1 yard ÷ 3 = _____ inches

1 yard ÷ 6 = _____ inches

10 Challenge

Dimes	10	20	25	30	40
Dollars					

Dimes	5	10	20	40	80
Dollars					

Measuring Length in Centimeters

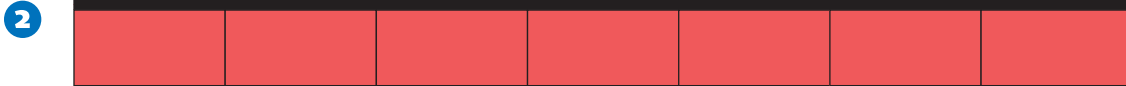
NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.11A

- 1 Complete the table.

Cuisenaire® Rod										
Length in Centimeters	1									

Measure each line with the Cuisenaire® Rod shown.
Then, find the length of the line in centimeters.



7 red rods _____ centimeters



_____ light green rods _____ centimeters



_____ yellow rods _____ centimeters



_____ purple rods _____ centimeters

Estimate the length of each line with the units shown. Then, estimate each length in centimeters. The paper clip is about 3 cm long.

6



_____ paper clips

_____ centimeters

7



_____ paper clips

_____ centimeters

8



_____ paper clips

_____ centimeters

9



_____ paper clips

_____ centimeters

10 Challenge



2 _____ rods

14 centimeters

Measuring Capacity in Cups, Pints, and Quarts

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.11B, 4.14A, 4.14B

Compare the amounts. Write $<$, $>$, or $=$ in each .

1 1 quart  1 pint

2 2 cups  1 pint

3 1 cup  1 quart

4 1 quart  3 pints

5 1 pint  1 cup

6 3 cups  1 quart

Write the missing number to make each statement true.

7 1 pint = _____ cups

8 1 quart = _____ pints

9 1 quart = _____ cups

10 _____ pints = 4 cups

11 6 pints = _____ quarts

12 _____ cups = 3 pints

Solve.

13 Howie filled a pint container halfway. How many more cups does he need to fill the container completely?

_____ cup(s)

14 Sharon poured 3 cups of water out of a filled 2-pint container. How many cups were left?

_____ cup(s)

15 Rebecca used a pint container to fill a quart container with water. How many times did she fill the pint container?

_____ times

16 Carl needed a quart of milk for his special smoothies. He had 3 cups of milk. Did he have enough?

yes no

17 Jen bought a pint of juice at the store and shared it equally with a friend. How much did each child get?

18 Lizzie gave each of her 6 friends a cup of milk. How many pints is that?

_____ pints

19 **Challenge** Peter poured 6 cups of water into a 2-quart container. Did he fill the container?

yes no

20 **Challenge** James emptied half of a 2-quart container into pint containers. He poured the rest into cups. How many cups did he fill?

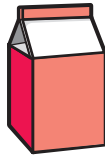
_____ cups

Measuring Capacity in Gallons and Liters

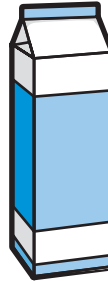
NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.3A, 4.4D, 4.4E, 4.11B, 4.14A, 4.14B

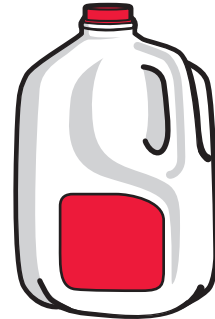

1 cup



1 pint



1 quart



1 gallon

Fill in the missing numbers.

1 1 gallon = _____ quarts

2 1 gallon = _____ pints

3 1 gallon = _____ cups

4 _____ cups = 1 pint

5 2 pints = _____ quart

6 8 quarts = _____ gallons

7 8 quarts = _____ pints

8 _____ gallons = 16 pints

Solve.

- 9 Evan poured a cup of water into a quart container. How many more cups are needed to fill the container?

_____ cups

- 10 Elsie filled a gallon container with water using a pint container. How many times did she fill the pint container?

_____ times

- 11 Pat had a liter of milk. He used 300 milliliters to make pancakes. How many milliliters did he have left?

_____ milliliters

- 12 Stephanie poured 18 cups of water into a gallon container. Did the container overflow?

yes no

- 13 Josh bought a gallon of milk at the store and gave a pint to each of his 8 friends. Was there any milk left for him?

yes no

- 14 Matt filled a quart container halfway. How many more cups did he need to fill the container completely?

_____ cups

- 15 **Challenge** Cindy had 2 gallons of milk to make smoothies. Each smoothie used 2 cups of milk. How many smoothies could she make?

_____ smoothies

- 16 **Challenge** June needed 7 quarts of juice, but the store sold only liter containers. How many liters should she buy?

_____ liters

Computing Amounts of Liquid

NCTM Standards 1, 2, 6, 7, 8, 9, 10

TEKS 4.4B, 4.4D, 4.4E, 4.7, 4.11B

Complete the table.

1	Gallons	0	1	2	3	4	5
	Quarts	0	4	8			

2	Quarts	1	2	3	5	8	13
	Pints	2	4				

3	Quarts	$\frac{1}{2}$	1	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
	Cups		4				

Fill in the blanks. Use the above tables to help you.

4 $2 \text{ quarts} + 2 \text{ quarts} = \underline{\hspace{2cm}} \text{ quarts}$
 $2 \text{ quarts} + 2 \text{ quarts} = \underline{\hspace{2cm}} \text{ gallon}$

5 $3 \text{ pints} + 1 \text{ pint} = \underline{\hspace{2cm}} \text{ pints}$
 $3 \text{ pints} + 1 \text{ pint} = \underline{\hspace{2cm}} \text{ quarts}$

6 $1 \text{ gallon} = \underline{\hspace{2cm}} \text{ quarts}$
 $1 \text{ gallon} - 1 \text{ quart} = \underline{\hspace{2cm}} \text{ quarts}$

7 $1 \text{ quart} \times 8 = \underline{\hspace{2cm}} \text{ quarts}$
 $1 \text{ quart} \times 8 = \underline{\hspace{2cm}} \text{ gallons}$

8 $2 \text{ quarts} = \underline{\hspace{2cm}} \text{ pints}$
 $2 \text{ quarts} - 1 \text{ pint} = \underline{\hspace{2cm}} \text{ pints}$

9 $1 \text{ gallon} \times 3 = \underline{\hspace{2cm}} \text{ gallons}$
 $1 \text{ gallon} \times 3 = \underline{\hspace{2cm}} \text{ quarts}$

Complete the table.

10	Gallons	1	2	3	4	5	6
	Quarts	4					
	Pints	8					
	Cups	16					



11 Write a word problem that can be solved using the table above. Then solve it.

Fill in the blanks. Use the above table to help you.

- 12 $\frac{1}{2}$ gallon = _____ quarts

2 cups \times 4 = _____ pints

5 pints $-$ 2 cups = _____ cups

8 quarts \div 2 = _____ gallon
- $\frac{1}{2}$ gallon = _____ pints

2 pints \div 2 = _____ cups

$\frac{1}{2}$ quart = _____ pint

1 gallon $-$ 1 cup = _____ cups

13	Liters	$\frac{1}{2}$	1	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
	Milliliters		1,000				

14 Challenge

1 liter $-$ $\frac{1}{2}$ liter = _____ mL

15 Challenge

2,500 mL $+$ 1 liter = _____ mL

16 Challenge

3 liters \div 2 = _____ mL

17 Challenge

2,000 mL \times 2 = _____ liters

Measuring Weight in Ounces, Pounds, and Tons

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.11B, 4.16B

Complete the tables.

1	Pounds	1	2	3	4	5	6	7	8	9	10
	Ounces	16									

2	Pounds	0	$\frac{1}{2}$	1	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$
	Ounces	0	8								

3	Pounds	0	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{4}$
	Ounces	0	4								

4	Tons	1	2	3	4	5	6	7	8	9	10
	Pounds	2,000									

5	Tons	0	$\frac{1}{2}$	1	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$
	Pounds										

6	Tons	0	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{4}$
	Pounds										

- 7** Decide whether you would measure the weight of each item in ounces, pounds, or tons. Then write the name of the item in the correct column below.

Pencil	Lamp	Package
Statue of Liberty	Car	Dog
Apple	Light bulb	Pad of paper
Whale	Chair	Desk
Refrigerator	Newspaper	Fire truck

Ounces	Pounds	Tons
Pencil		

- 8 Challenge** Explain how you chose where to write package.

Measuring Weight in Grams and Kilograms

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.4D, 4.4E, 4.11B, 4.14B

Complete the tables.

1

Kilograms	1	2	3	5	8	10	12	15
Grams	1,000							

2

Kilograms	0	$\frac{1}{2}$	1	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$
Grams	0	500						

3

Kilograms		$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$			$3\frac{3}{4}$	
Grams	0			750	1,000	2,250		5,500

4

Yards	1	2	3	5	10		$\frac{5}{6}$	$1\frac{1}{6}$
Feet	3					$4\frac{1}{2}$		
Inches	36						30	42

5

Hours	0	$\frac{1}{2}$	1	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$
Minutes	0		60					
Seconds	0		3,600					

Solve.

- 6 If a paper clip weighs about 1 gram, about how much do 273 paper clips weigh?

- 7 If 3,016 large paper clips weigh about 6 kilograms, about how much does 1 large paper clip weigh?

- 8 There are 250 paper clips in a box. Each box weighs $\frac{1}{4}$ of a kilogram.

How many boxes weigh $3\frac{1}{2}$ kilograms? _____

How many boxes weigh 7 kilograms? _____

How many boxes weigh 70 kilograms? _____

- 9 Could a car weigh 5 kilograms?



- 10 Could a book weigh 5 kilograms?



- 11 Challenge** A kilogram is a little heavier than 2 pounds. Write $<$, $>$, or $=$.

2 kilograms ☐ 4 pounds

3 kilograms ☐ 10 pounds

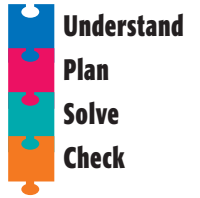
3 kilograms ☐ 3 pounds

$5\frac{1}{2}$ kilograms ☐ 10 pounds

Problem Solving Strategy

Look for a Pattern

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.7, 4.14B, 4.14C, 4.16B


- 1 Rita measured the temperature in degrees Fahrenheit ($^{\circ}\text{F}$) for several days. Her teacher, Mr. Chang, changed her measurements to a made-up unit called degrees Zonk ($^{\circ}\text{Z}$). Complete the table.

$^{\circ}\text{F}$	32	50	68	86	
$^{\circ}\text{Z}$	0	10	20		40

How did you complete the table?

- 2 Wendy invented her own unit of measurement called the gool. She made a table of some measurements, and then converted them into inches. Complete the table.

	Paper	Crayon	Pencil	Water Bottle	Finger
Gools	104	52	65		39
Inches	8		5	9	3

Problem Solving Test Prep

Choose the correct answer.

1 Rolls at the bakery are priced as shown in the table. If the pattern continues, how much would 10 rolls cost?

Rolls	1	2	3	4
Cost	\$0.50	\$0.75	\$1.00	\$1.25

- A. \$2.00
- C. \$2.50
- B. \$2.25
- D. \$2.75

2 How many more faces does a rectangular prism with a square base have than a pyramid with a square base?

- A. 1
- B. 2
- C. 3
- D. 4

Show What You Know

Solve each problem. Explain your answer.

3 There are 10 sandwiches on a plate. They have either turkey or salami or both. Four of the sandwiches have turkey, and 8 have salami. How many have both? Explain how you found your answer.

4 In the pattern shown below, you can find the sum of each row.

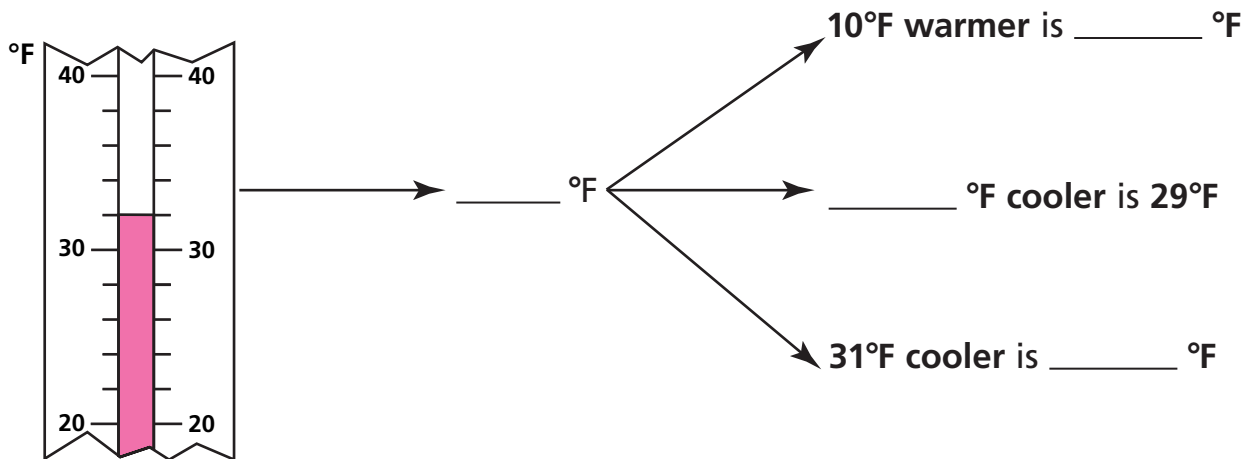
		1		Row 1
	1		1	Row 2
	1	2	1	Row 3
1	3	3	1	Row 4

Describe the pattern you see in the sums of the first 4 rows. If the pattern continues, what will be the sum of Row 8? Explain how you decided.

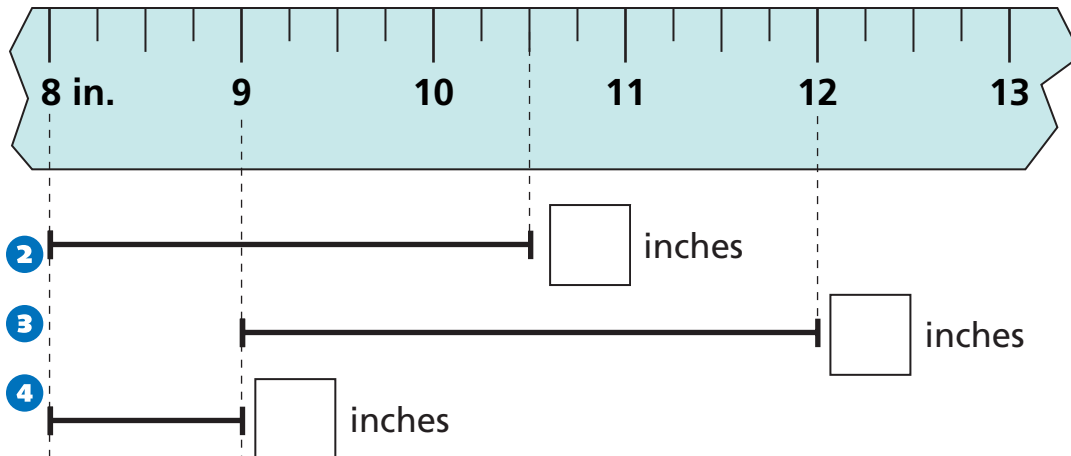
Review/Assessment

NCTM Standards 1, 2, 6, 7, 8, 9, 10

1 Write the temperatures. Lesson 2



Measure each length. Lesson 3



5 Complete the table. Lesson 5

Centimeters		300			600		250	10,000
Meters	1	3	5	10		$1\frac{1}{2}$		

Find the missing numbers to make each statement true. Lessons 1, 4, 6, 9

<p>6 $\\$3.00 \div 3 = \underline{\hspace{1cm}}$ quarters</p>	<p>7 3 weeks = $\underline{\hspace{1cm}}$ days</p> <p>3 weeks – 9 days = $\underline{\hspace{1cm}}$ days</p>
<p>8 4 inches $\times 3 = \underline{\hspace{1cm}}$ inches</p> <p>4 inches $\times 3 = \underline{\hspace{1cm}}$ foot</p>	<p>9 9 inches $\times 4 = \underline{\hspace{1cm}}$ inches</p> <p>9 inches $\times 4 = \underline{\hspace{1cm}}$ yard(s)</p>
<p>10 2 kilograms = $\underline{\hspace{1cm}}$ grams</p> <p>2 kilograms $\div 2 = \underline{\hspace{1cm}}$ grams</p>	<p>11 25 centimeters $\times 12 = \underline{\hspace{1cm}}$ cm</p> <p>25 centimeters $\times 12 = \underline{\hspace{1cm}}$ meters</p>
<p>12 It was 56°F when Erin got up for school. When she got home from school, she noticed the temperature had increased 12 degrees. What did the thermometer read after school? Lesson 2</p> <p>A. 12°F C. 70°F</p> <p>B. 44°F D. 68°F</p>	<p>13 Manny has \$2.10. He buys a ruler for 5 dimes. How much does he have left? Lesson 1</p> <p>A. \$1.00 C. \$1.60</p> <p>B. \$1.50 D. \$1.70</p>

- 14 A brick wall has 40 bricks on the first layer, 36 bricks on the second layer and 32 in the third layer. If the pattern continues, how many bricks will be on the fifth layer? Lesson 11
- A. 44 bricks
- B. 28 bricks
- C. 24 bricks
- D. 20 bricks

Finding Combinations of Attributes

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.13A, 4.15A

Describe all the cards that could be made for each setting. You might not need all the spaces.

1 Figure =

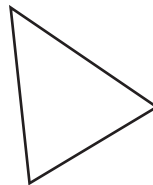


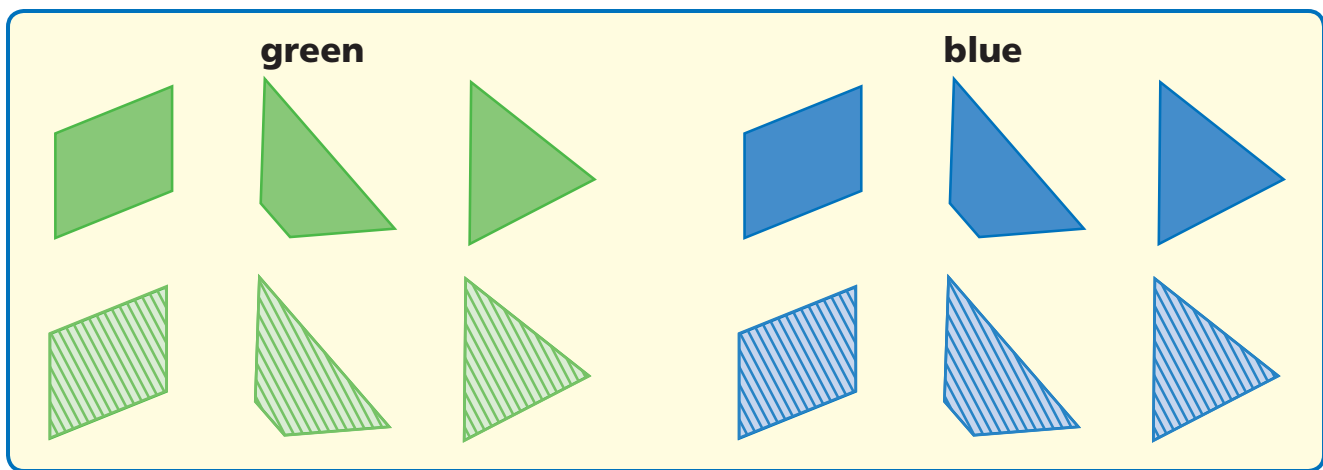
2 Color = green

3 Shading =



; Figure =





Answer the questions about the cards.

4 What portion of the cards
are green? ____ out of ____
What portion of the cards
have a triangle? ____ out of ____
What portion of the cards have
a green triangle? ____ out of ____

5 What portion of the cards
have polka dots? ____ out of ____
What portion of the cards
have a trapezoid? ____ out of ____
What portion of the cards have a
polka-dot trapezoid? ____ out of ____

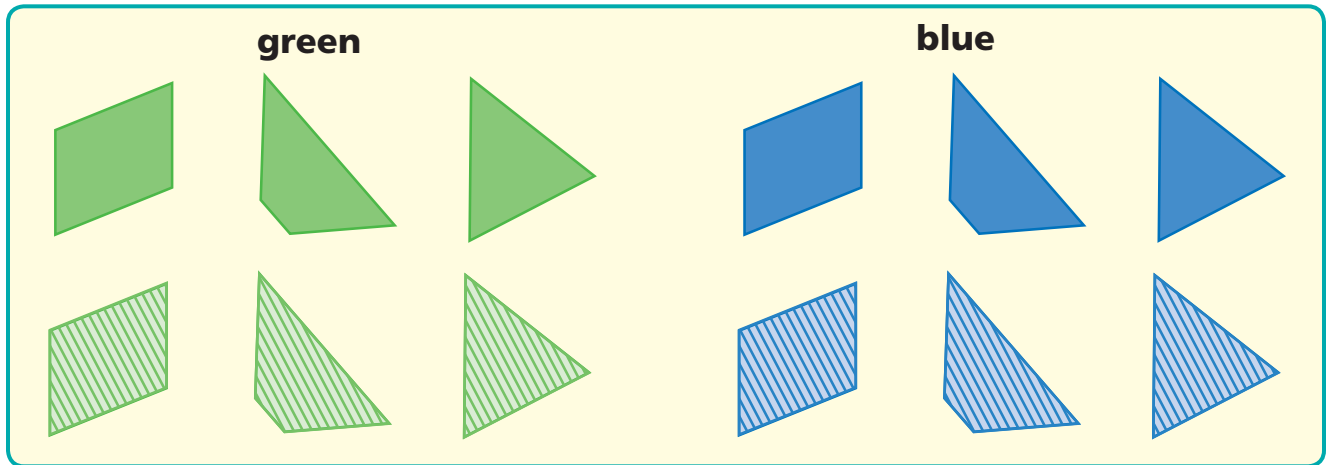
6 What portion of the cards have a parallelogram? ____ out of ____
What portion of the cards have a solid blue figure? ____ out of ____
What portion of the cards have at least one of these
attributes: a parallelogram or a solid blue figure? ____ out of ____

7 Challenge

What portion of the cards do not have a triangle? ____ out of ____
What portion of the cards are not green? ____ out of ____
What portion of the cards are green and
do not have a triangle? ____ out of ____
What portion of the cards have at least one of
these attributes: green or no triangle? ____ out of ____

Describing the Likelihood of an Event

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.13A, 4.16B,


- 1 What portion of the cards have parallelograms?

_____ out of _____

Write your answer as a fraction.

- 2 What portion of the cards are blue or green?

_____ out of _____

Write your answer as a fraction.

- 3 What portion of the cards are blue or solid-colored or both?

_____ out of _____

Write your answer as a fraction.

Label these possibilities *certain, likely, unlikely, or impossible*, using your answers to the above questions.

- 4 choosing a card with a parallelogram

- 5 choosing a card that is blue or green

- 6 choosing a card that is blue or solid or both

Label these possibilities *certain*, *likely*, *unlikely*, or *impossible* and explain why you chose each answer.



7 The card has a striped trapezoid.



8 The card does not have a triangle.

Give an example of a possibility that fits each label.

9 Impossible The card _____

10 Likely The card _____

11 Unlikely The card _____

12 Challenge Michaela has a bag of marbles.
 $\frac{1}{3}$ of the marbles are red, $\frac{1}{6}$ of the marbles are blue, and $\frac{1}{2}$ of the marbles are yellow.

If Michaela picks a marble without looking, what color is she most likely to pick?

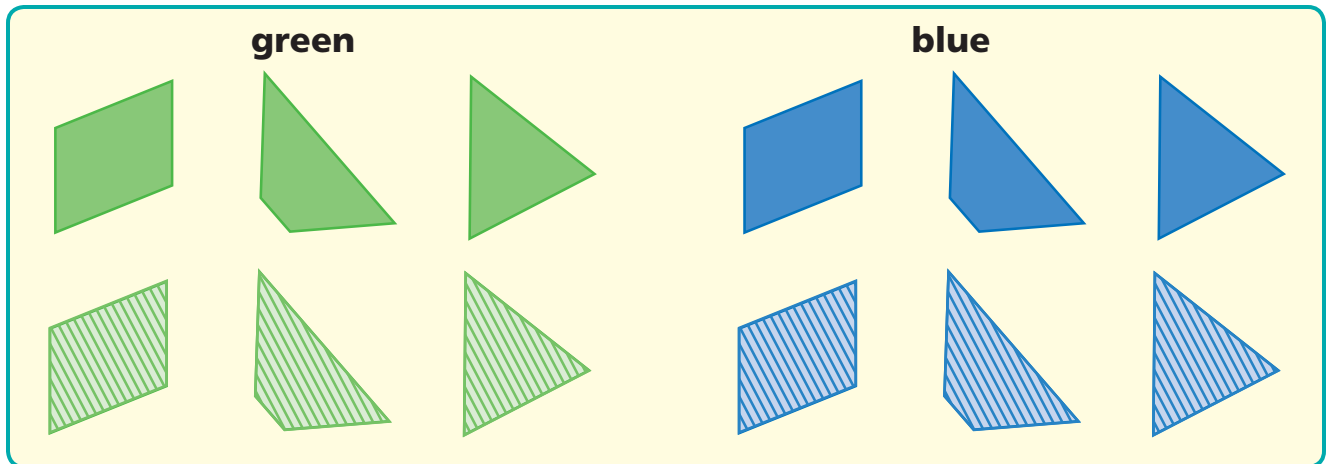


Explain your reasoning.

Introducing Probability

NCTM Standards 1, 2, 6, 7, 8, 9, 10

TEKS 4.15A



In the answer boxes on the right side of the page, write a fraction to show the probability of getting a card like the named card if you draw one card without looking.

What portion of the cards . . .

- | | | |
|--|----------------|-----|
| 1 . . . have a solid green trapezoid? | ___ out of ___ | ___ |
| . . . do NOT have a solid green trapezoid? | ___ out of ___ | ___ |
| 2 . . . are red? | ___ out of ___ | ___ |
| . . . are NOT red? | ___ out of ___ | ___ |
| 3 . . . have a solid blue figure? | ___ out of ___ | ___ |
| . . . do NOT have a solid blue figure? | ___ out of ___ | ___ |
| 4 . . . have a trapezoid? | ___ out of ___ | ___ |
| . . . are blue? | ___ out of ___ | ___ |
| . . . have a blue trapezoid? | ___ out of ___ | ___ |
| . . . are a trapezoid or blue or both? | ___ out of ___ | ___ |

**For each pair, circle the outcome that is more likely.
Circle both if they are equally likely.**

5 The card has a parallelogram. The card does NOT have a parallelogram.

6 The card has a striped triangle. The card has a parallelogram.

7 The card has a parallelogram. The card has a solid blue figure.

8 The card has a striped trapezoid. The card has a striped triangle.

9 The card has a green figure. The card has a triangle.



10 Explain why you chose your answers for Problems 5–9.

11 The card has an orange figure. The card does NOT have a parallelogram.



12 Explain why you chose your answer for Problem 11.

13 Challenge Imagine that you choose one card from the deck, look at it, put it back, shuffle, and then repeat 30 times. About how many times do you expect to see a card with a blue figure on it?

Is it certain, likely, unlikely, or impossible that you will see at least one card more than once?

Drawing From a Deck of Attribute Cards

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.15A

Trapezoid Experiment

Draw an attribute card from the deck 30 times, replacing the card and shuffling the deck after each draw. How many times did you pick a card with a trapezoid on it?

Data

For each draw, mark whether the card has a trapezoid or not by writing YES or NO in the column on the right.

Draw	Trapezoid?
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Draw	Trapezoid?
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Draw	Trapezoid?
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

What portion of the cards you drew were trapezoids? _____ out of 30

In several classrooms, students drew a card 30 times and recorded the number of triangles they picked. The results for three of the classes are given below.

A

Number of triangles picked	5	6	7	8	9	10	11	12	13	14	15
Number of students	0	0	0	8	4	8	7	2	1	0	0

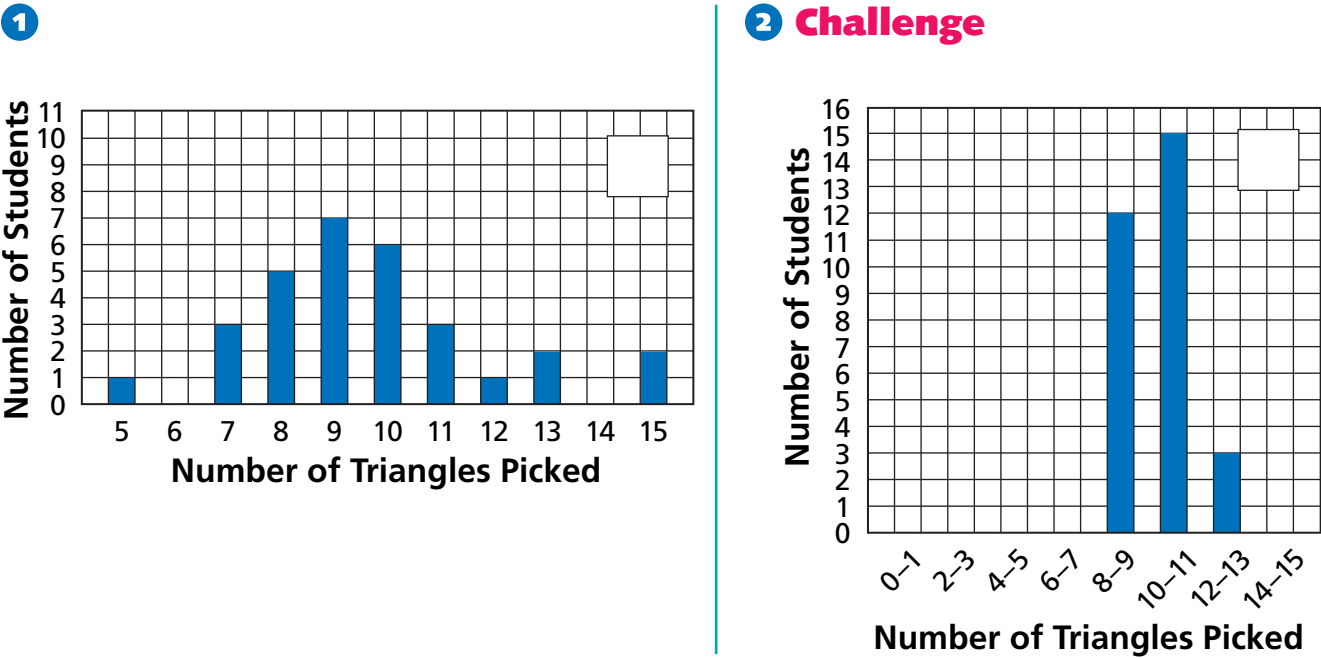
B

Number of triangles picked	5	6	7	8	9	10	11	12	13	14	15
Number of students	0	0	1	6	6	11	5	1	0	0	0

C

Number of triangles picked	5	6	7	8	9	10	11	12	13	14	15
Number of students	1	0	3	5	7	6	3	1	2	0	2

Label each graph with the set of data it matches.



Drawing Blocks

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.13B, 4.15A, 4.16B

In the 9-block experiment, your class drew one of these blocks at random, 27 times. Use your class's graph of the data from the experiment to answer these questions.



- 1 Which block or blocks was picked most frequently? _____

- 2 Which block or blocks was picked least frequently? _____

- 3 What portion of the blocks picked were even-numbered? _____ out of _____

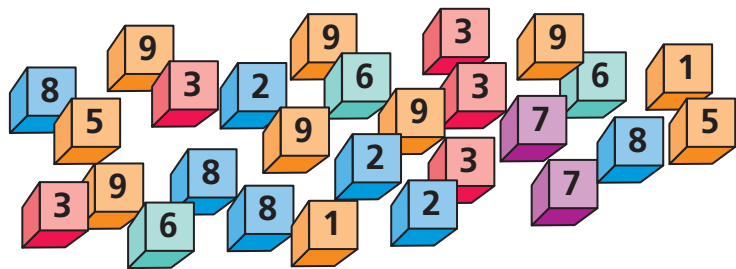
- 4 What portion of the blocks picked were numbered with multiples of 3? _____ out of _____

- 5 What portion of the blocks picked were numbered with square numbers? _____ out of _____

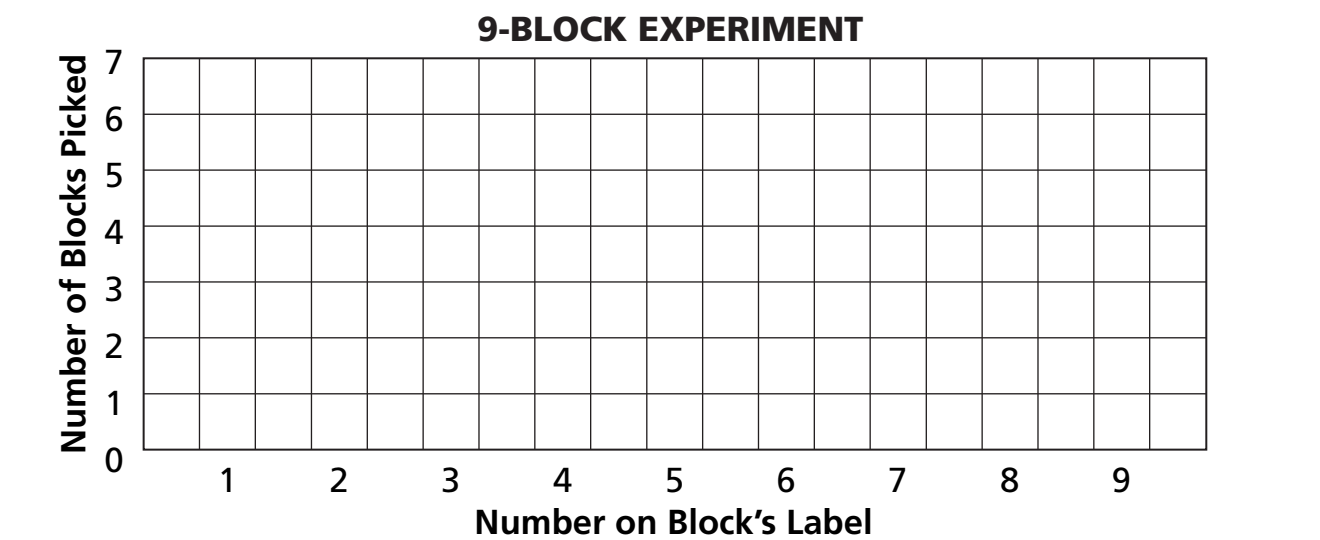
- 6 What portion of the blocks picked were numbered 5 or higher? _____ out of _____

- 7 Were there any blocks that didn't get picked at all? _____

Mrs. Garabedian’s class did the 9-block experiment. Each student picked a block from the bag. Here are their results:



8 Graph the data.



9 What portion of the blocks picked were even-numbered? ____ out of ____

10 What portion of the blocks picked were numbered with multiples of 3? ____ out of ____

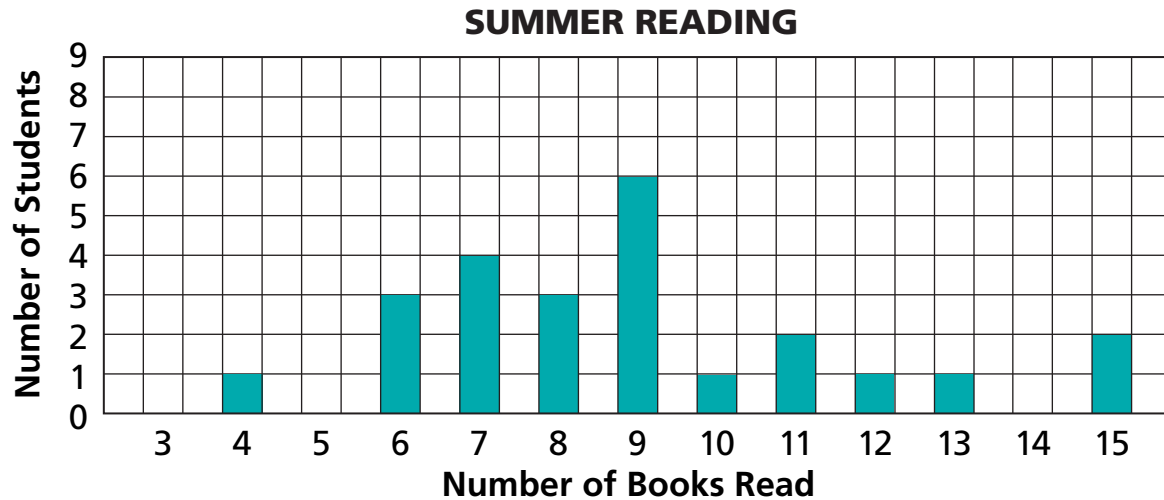
11 Challenge Choose one thing about this class’s results that surprises you. Explain why it surprises you.

Collecting and Analyzing Survey Data

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.13B, 4.15A

Ms. Ramiro's class made a graph of the number of books each student read during summer vacation.



1 What was the most common number of books read? _____

2 What was the largest number of books read? _____

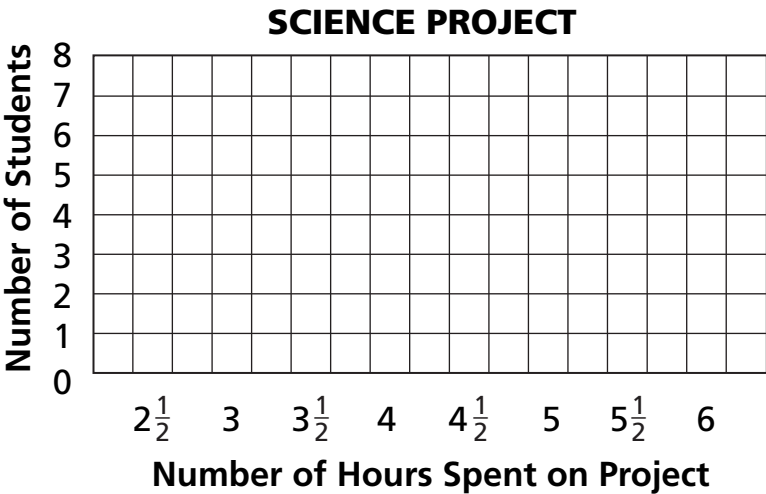
3 What portion of the students read at least 8 books? _____ out of _____

4 What portion of the students read 6, 7, 8, or 9 books? _____ out of _____


Mr. Tan surveyed his students to find out how long it took them to finish a science project. Here is the data:

3 hours	5 hours	$5\frac{1}{2}$ hours	4 hours	3 hours
5 hours	$4\frac{1}{2}$ hours	4 hours	$4\frac{1}{2}$ hours	$3\frac{1}{2}$ hours
$3\frac{1}{2}$ hours	4 hours	3 hours	$3\frac{1}{2}$ hours	3 hours
4 hours	$3\frac{1}{2}$ hours	6 hours	3 hours	5 hours

5 Graph the data.



- 6 About half the class spent at least ____ hours on the project.
- 7 The amount of time the most students spent was ____ hours.



8

Challenge The students who took at least 5 hours to finish their project included graphs. Mr. Tan now wants all of his students to include graphs in their next project. Predict how much extra time it will take the students to include graphs in their next project. Explain how you found your answer.

Collecting Measurement Data

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.11A, 4.13B

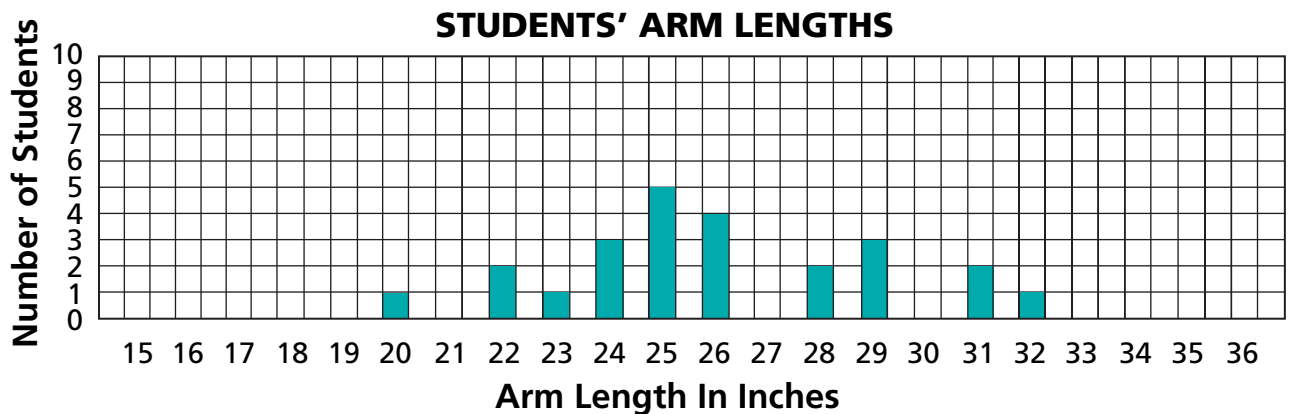
Collecting Data

Measure the length of your arm to the nearest quarter inch.

Measurement: _____ Round to the nearest inch: _____

Here are the arm lengths in a fourth-grade class.

Record your own arm length on the graph.



- 1 If you picked a student at random from this class, what is the likelihood that the student's arms would be at least 1 inch longer than yours? Circle your answer.

Certain

Likely

Unlikely

Impossible

Explain your answer. _____

- 2 If you picked a student at random from this class, what is the likelihood that the student's arms would be at least 5 inches longer than yours? Circle your answer.

Certain

Likely

Unlikely

Impossible

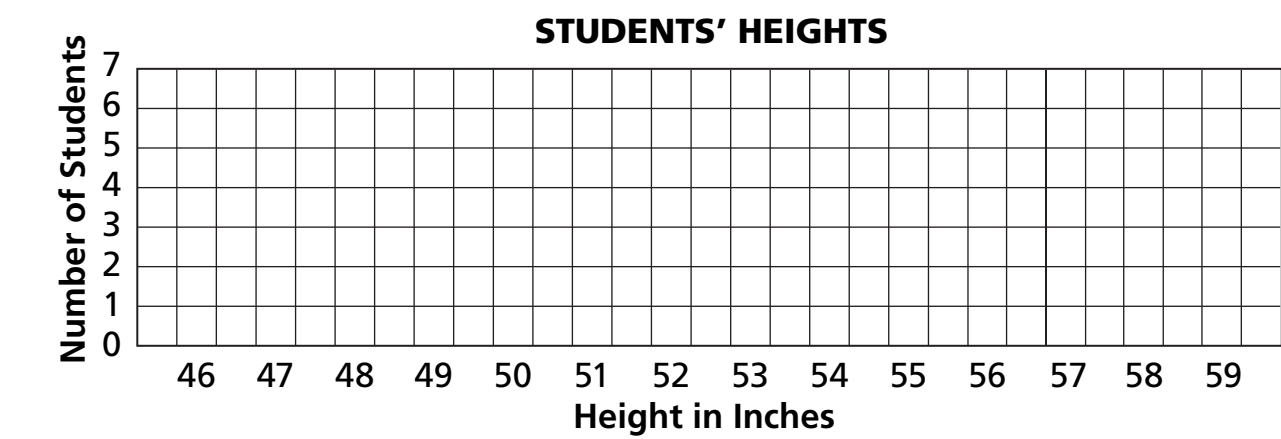
Explain your answer. _____

Height Measurements

A third grade class measured the height of each student.

50 inches	54 inches	52 inches	51 inches	51 inches
56 inches	58 inches	54 inches	54 inches	55 inches
51 inches	52 inches	53 inches	55 inches	52 inches
54 inches	51 inches	55 inches	52 inches	54 inches
50 inches				

3 Graph the data that the class collected.



4 What is the most common height in the class? _____

5 **Challenge** Shawn is a student in the class. Half the students are shorter than he is and half are taller. How tall is Shawn? _____

Analyzing Measurement Data

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.13B

Now that your class has collected and graphed data about the lengths of students' arms, use the graph to answer these questions about the data.

1 What is the shortest arm length in your class? _____ inches

2 What is the longest arm length in your class? _____ inches

3 Which arm lengths showed up most frequently in your measurement data? _____ inches

4 What is the range of arm lengths in your class? _____ in. to _____ in.

5 How many students are in your class? _____ students

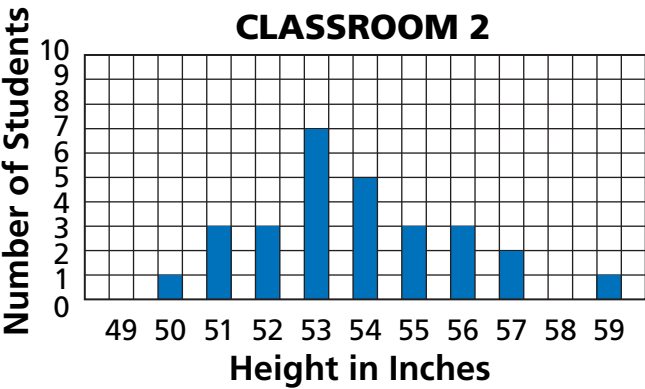
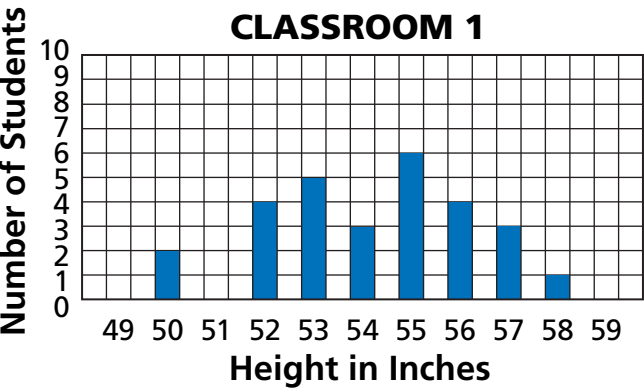
6 How many students have arms that are 20 inches long? _____ students

7 If you picked a student at random from your class, what is the probability that the student's arms would be exactly 20 inches long? _____

8 How many students have arms that are 40 inches long? _____ students

9 If you picked a student at random from your class, what is the probability that the student's arms would be 40 inches long? _____

Use these graphs to compare the data from two classrooms.



10 How many students are in each classroom? _____ students

11 How tall is the shortest student in each classroom?

Classroom 1 _____

Classroom 2 _____

12 In each classroom, half the students are as tall or taller than what height?

Classroom 1 _____

Classroom 2 _____

13 If you picked a student at random from each class, what is the probability that the student would be 53 inches tall?

Classroom 1 _____

Classroom 2 _____

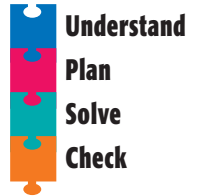
14 **Challenge** You measure the height of a student in one of the classrooms. What can you be certain will be true about the measurement?

Problem Solving Strategy

Make a Graph

NCTM Standards 1, 2, 6, 7, 8, 9, 10

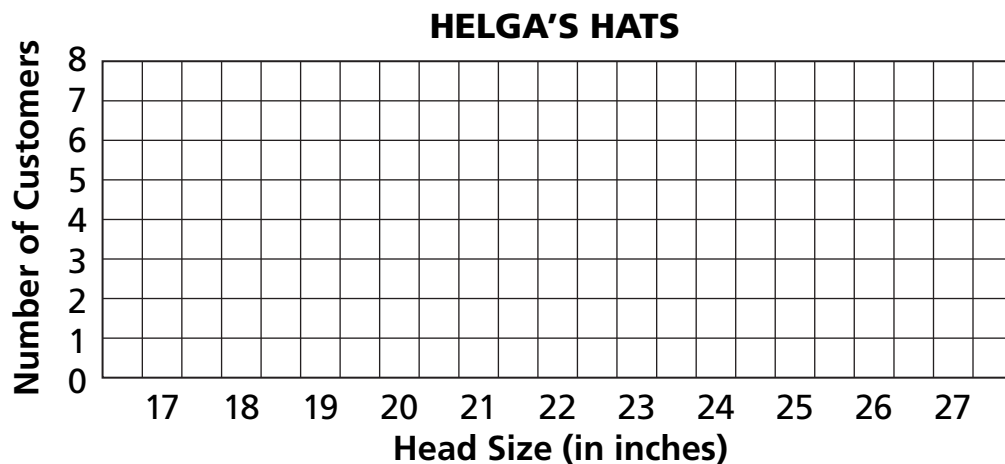
TEKS 4.13B, 4.14A, 4.14B, 4.14C, 4.16B



Solve each problem. Helga's Hat Shop can afford to keep only 3 sizes of hats in stock. Helga measured the heads of 20 customers to get an idea of which sizes are most common.

- 1 Graph the data to find the 3 most common sizes.

18 inches	24 inches	22 inches	25 inches	19 inches
22 inches	20 inches	19 inches	20 inches	19 inches
21 inches	19 inches	21 inches	21 inches	20 inches
21 inches	20 inches	25 inches	21 inches	20 inches



- 2 The 3 most common head sizes are: _____ inches
 _____ inches
 _____ inches

- 3 One of the 20 customers wants to buy a hat. What is the probability that one of the 3 sizes you chose will fit the customer? _____

Problem Solving Test Prep

Choose the correct answer.

- 1

Samantha glues 8 cubes together to make a larger cube and paints the outside. When she takes the large cube apart, how many of the original 8 cubes will have exactly 3 faces painted?

A. 0

C. 4

B. 2

D. 8
- 2

In a board game, Tim begins at 0. He moves forward 3 spaces and back 1. If he makes that move a total of 12 times, how many spaces will he have advanced after the 12 moves?

A. 6

C. 9

B. 8

D. 24

Show What You Know

Solve each problem. Explain your answer.

- 3

Jenny brought 36 pieces of fruit to class. Of the 36 pieces of fruit, $\frac{1}{3}$ are oranges, $\frac{1}{3}$ are apples, and the rest are bananas. At the end of the school day, there are 5 bananas. How many bananas were eaten? Explain how you solved the problem.
- 4

Four girls compare their heights. Only one girl is shorter than Abby. Halley is shorter than Ellen. Jesse is shorter than Halley. From this information, can the girls be put in order from shortest to tallest? If so, explain your solution. If not, explain what other information you would need.

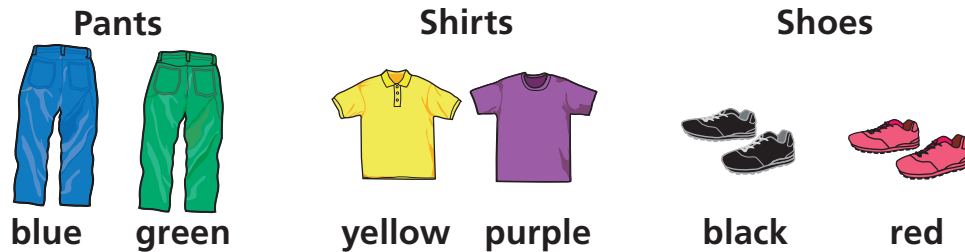
Chapter 10

Name _____ Date _____

Review/Assessment

NCTM Standards 1, 2, 6, 7, 8, 9, 10

- 1 Nona has 2 pairs of pants, 2 shirts, and 2 pairs of shoes. [Lesson 1](#)



How many different outfits can she wear? _____ outfits

List all the outfits here:

There are 3 coins in a bag, a penny, a dime, and a nickel. You reach in and pull out one coin. [Lesson 2](#)

- 2 Label the events *certain*, *likely*, *unlikely*, or *impossible*.

You pull a coin that is worth 25¢

You pull a coin that is worth at least 5¢

You pull a coin that is worth at least 1¢

- 3 Circle the event that is more likely. If they are equally likely, circle them both.

You pull a coin that is worth 10¢.

You pull a coin that is worth less than 10¢.

You spin each spinner once. Write the probabilities that you'll land on green (G) or blue (B). Lessons 3, 4, and 5

4

green sections =	_____ out of _____
blue sections =	_____ out of _____

Probability of landing = on green	
Probability of landing = on blue	

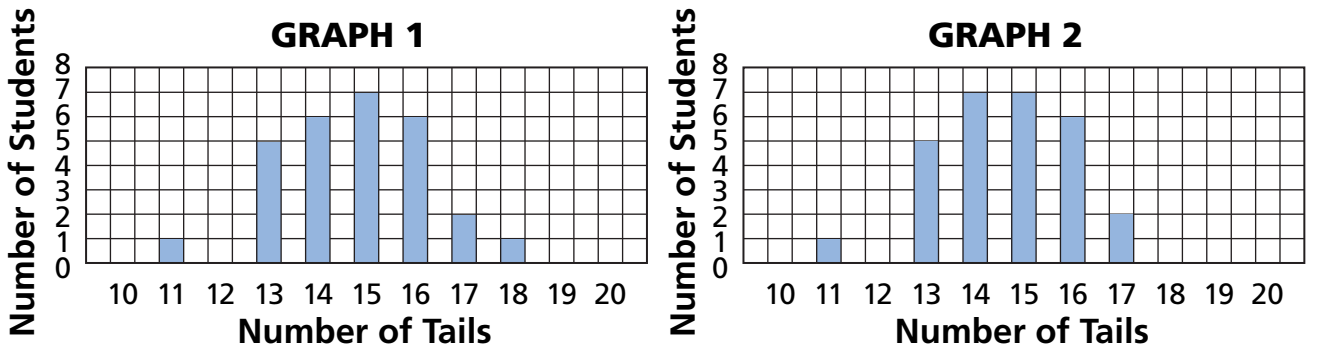
5

Probability of landing = on green	
Probability of landing = on blue	

6

Probability of landing = on green	
Probability of landing = on blue	

7 Each student in a class of 28 students tossed a coin 30 times. Here are two graphs. One is NOT correct. Lessons 6, 7, 8, and 9



Here is a table of the original data.

Number of tails	10	11	12	13	14	15	16	17	18	19	20
Number of students	0	1	0	5	7	7	6	2	0	0	0

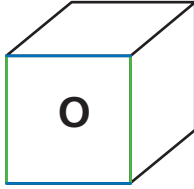
Which graph matches the data? _____

Making a Figure Zoo

NCTM Standards 3, 6, 7, 8, 9

 TEKS 4.8A, 4.8B, 4.8C, 4.15A

Use the picture or the actual polyhedron to answer these questions.



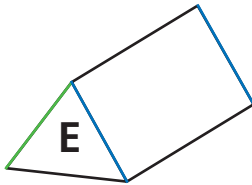
The polyhedron has six square faces.

- 1 Look at face O.

The two blue edges are: parallel or perpendicular

The blue edges are: parallel or perpendicular to the green edges.

An angle formed by a blue and green edge is: acute or right or obtuse



This polyhedron has five faces.

Three of them are rectangles

- 2 What shape is face E on the figure?

- 3 The angle formed by a blue and green edge of face E is:

acute or right or obtuse

Use your previous experience with figures or refer to a polyhedron in the figure zoo to help you answer these questions. Think about the sides and angles of each figure while you answer.



4 Describe the features that make a figure a square.



5 Describe the features that make a figure a triangle.



6 **Challenge** Describe the features that make a figure a trapezoid.

Describing Three-Dimensional Figures

NCTM Standards 3, 6, 7, 8, 9, 10

 TEKS 4.8C, 4.15A

Attach a copy of your net here.



1 Describe the faces of your figure.

2 Does your solid have two faces that don't share an edge?

☐

Yes

☐

No

If you answered yes, shade one pair of those faces on the net.

3 Does your solid have two faces that appear to be perpendicular to each other?

☐

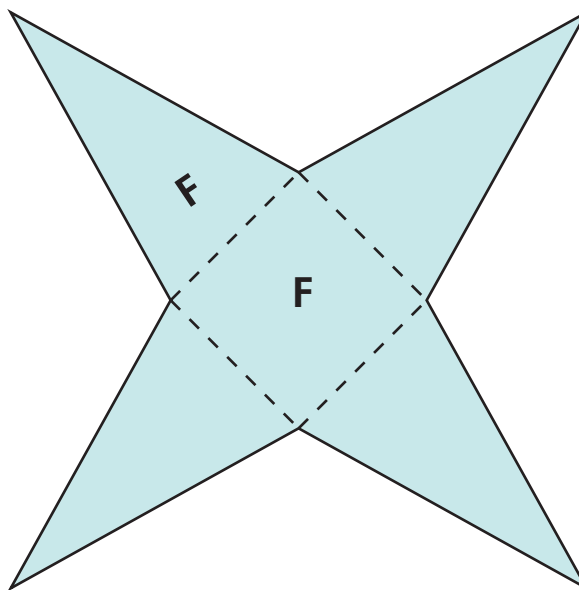
Yes

☐

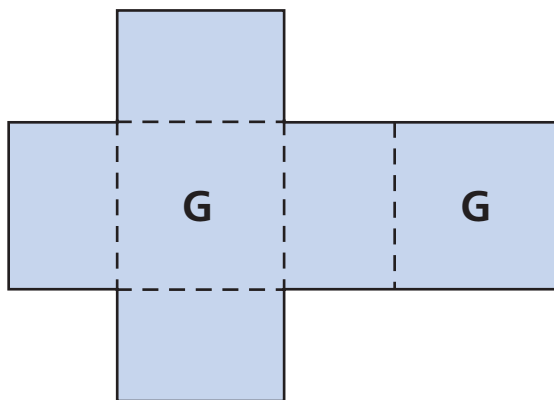
No

If you answered yes, circle them on the net.

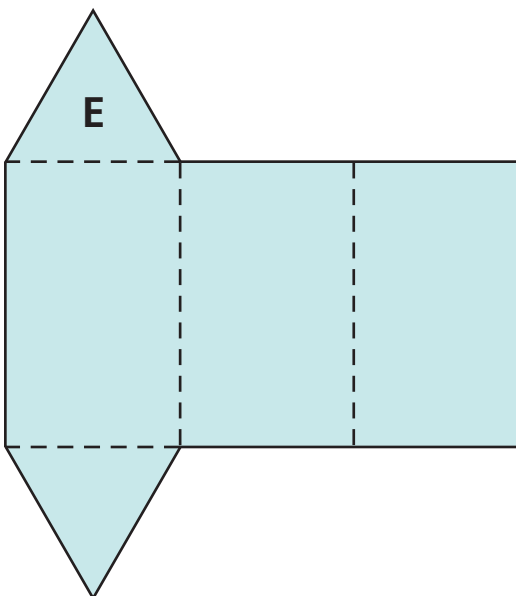
- 4 The quadrilateral on this net is a square. Find two parallel edges on the three-dimensional figure. Circle them on the net.



- 5 All of the figures on this net are rectangles. Find two perpendicular faces on the three-dimensional figure. Shade them on the net.



- 6 **Challenge** Find two vertices that are not connected by an edge. Circle them on the net.



Going On a Figure Safari

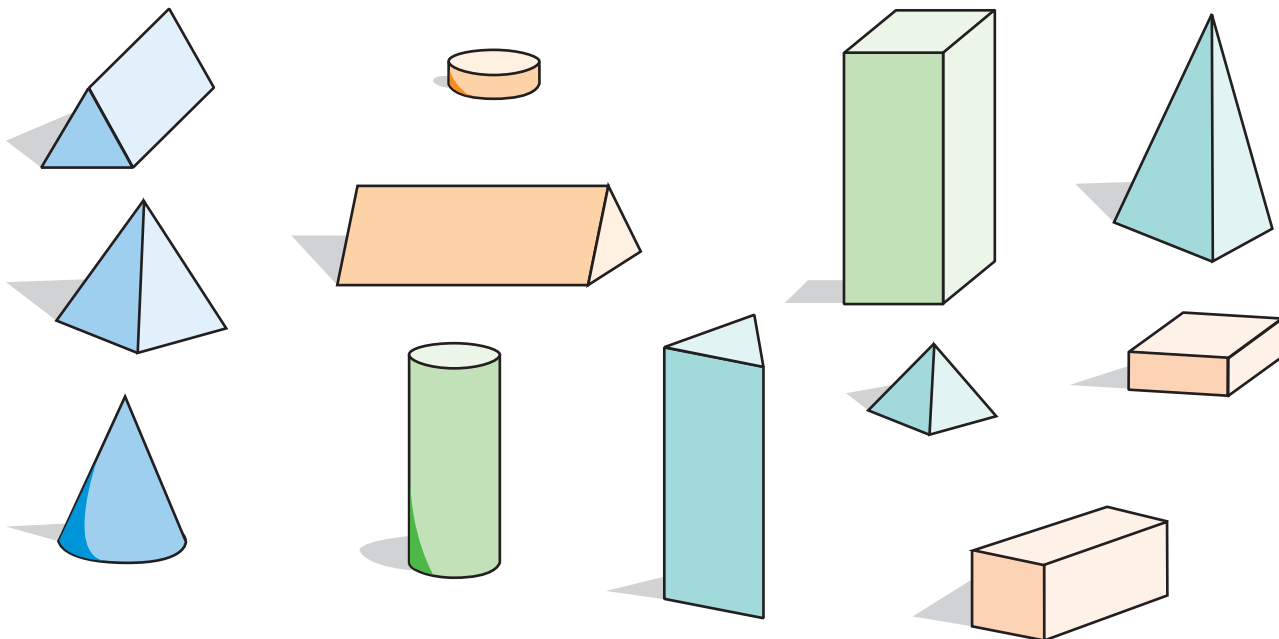
NCTM Standards 3, 6, 7, 8, 9, 10

 TEKS 4.8C

For each puzzle, look through all the polyhedra and list the letters of those that appear to match the clues. Try standing each figure on different faces to see if there is any way the figure might fit the clues.



Clues	Answers
<p>1 <input checked="" type="checkbox"/> All of my faces are rectangles.</p> <p><input checked="" type="checkbox"/> At least 2 of my faces are squares.</p>	
<p>2 <input checked="" type="checkbox"/> I have at least 2 faces that are parallel to each other.</p>	
<p>3 <input checked="" type="checkbox"/> All of my angles are right.</p> <p><input checked="" type="checkbox"/> All of my faces are congruent.</p>	
<p>4 <input checked="" type="checkbox"/> I have the same number of faces as vertices.</p> <p><input checked="" type="checkbox"/> At least 3 of my faces are congruent.</p>	
<p>5 <input checked="" type="checkbox"/> I have more vertices than faces.</p> <p><input checked="" type="checkbox"/> At least one of my faces is not a rectangle.</p> <p><input checked="" type="checkbox"/> None of my faces is perpendicular to another face.</p>	



Write the name of the figure that matches each puzzle. Use pyramid, prism, cone, or cylinder.

Clues	Answers
<p>6 <input checked="" type="checkbox"/> All of my faces are polygons.</p> <p><input checked="" type="checkbox"/> None of my faces is parallel to another face.</p>	
<p>7 <input checked="" type="checkbox"/> Two of my faces are congruent and parallel to each other.</p> <p><input checked="" type="checkbox"/> All of my other faces are parallelograms.</p>	
<p>8 <input checked="" type="checkbox"/> All of my faces are polygons.</p> <p><input checked="" type="checkbox"/> I have the same number of faces and vertices.</p>	

9 Challenge

- ☒ I have exactly two congruent surfaces.
- ☒ The two surfaces are not polygons.

Finding the Area of Faces on Three-Dimensional Figures

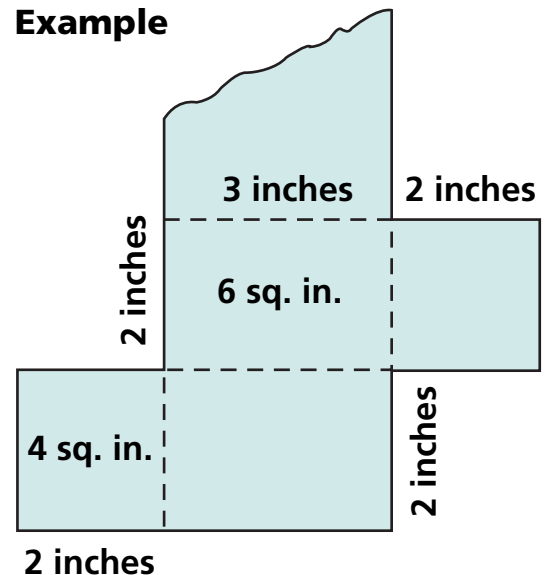
NCTM Standards 1, 3, 4, 6, 7, 8, 9, 10

TEKS 4.11A, 4.15A

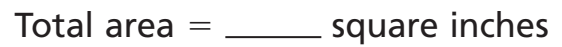
Attach a small copy of the net for your three-dimensional figure here:

- 1 Label your picture to show the full size measurements of each edge of your polyhedron. See the example at the right.
- 2 Based on your measurements, label your picture to show the area of each face or surface of your polyhedron.
- 3 What is the total area of the faces or surfaces of your polyhedron?

Example



4



5



A net of a triangular prism is shown. It consists of two identical right triangles and three rectangles. The two right triangles are labeled "M" and have legs of 2 inches and 2 inches, and a hypotenuse of $2\frac{1}{2}$ inches. The three rectangles have dimensions of 3 inches by 2 inches, 3 inches by $2\frac{1}{2}$ inches, and 2 inches by $2\frac{1}{2}$ inches. The net is arranged such that the two triangles are at opposite ends, and the three rectangles connect them along their 2-inch sides.

Total area = _____ square inches

Finding Volumes of Three-Dimensional Figures

NCTM Standards 1, 3, 4, 6, 7, 8, 9, 10

 TEKS 4.11C, 4.14C

Attach a small copy of the net for your three-dimensional figure here:

Place your three-dimensional figure on the desk so that its bottom and top surfaces are congruent. Build the figure with cube blocks.

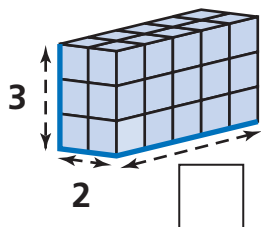
1 How many cubes are in the model? _____ cubes

2 How many cubes are in each layer? _____ cubes

3 How many layers of cubes are there? _____ layers

4 What is the volume of your three-dimensional shape? _____ cubic inches

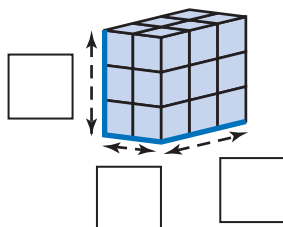
5



Number of
cubes in
each layer: _____ cubes

Volume: _____ cubes

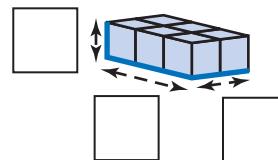
6



Number of
cubes in
each layer: _____ cubes

Volume: _____ cubes

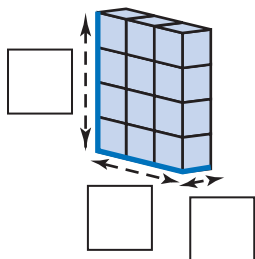
7



Number of
cubes in
each layer: _____ cubes

Volume: _____ cubes

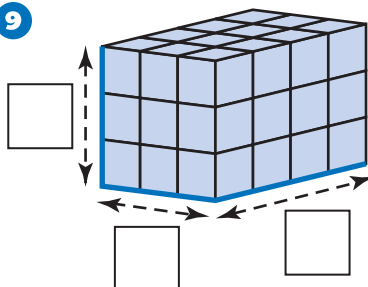
8



Number of
cubes in
each layer: _____ cubes

Volume: _____ cubes

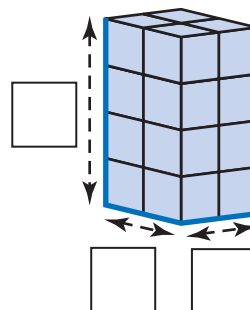
9



Number of
cubes in
each layer: _____ cubes

Volume: _____ cubes

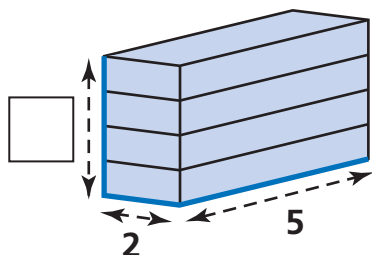
10



Number of
cubes in
each layer: _____ cubes

Volume: _____ cubes

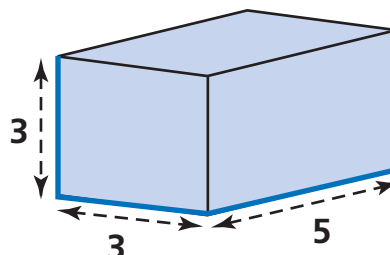
11 Challenge



Number of
cubes in
each layer: _____ cubes

Volume: _____ cubes

12 Challenge



Number of
cubes in
each layer: _____ cubes

Volume: _____ cubes

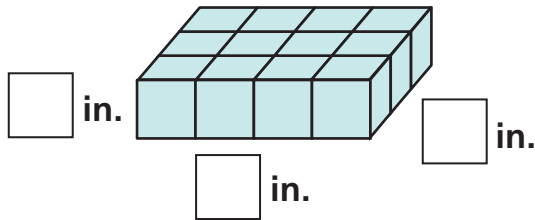
More Volumes of Three-Dimensional Figures

NCTM Standards 1, 3, 4, 6, 7, 8, 9, 10

 TEKS 4.11D, 4.15A, 4.16B

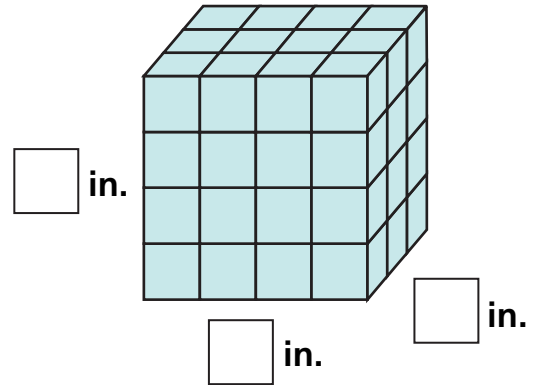
What is the volume of each three-dimensional figure? Each cube is 1 cubic inch.

1



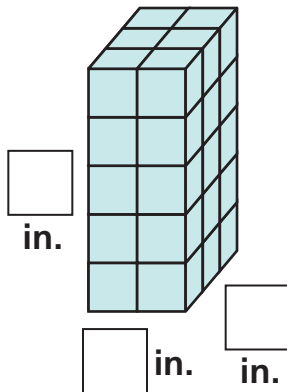
Volume: _____ cubic inches

2



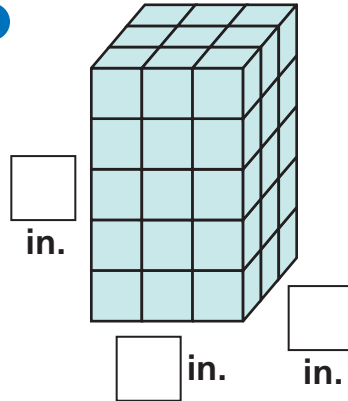
Volume: _____ cubic inches

3



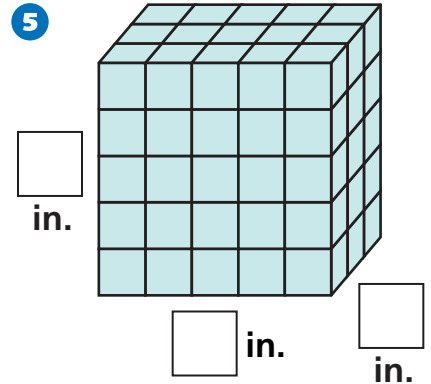
Volume:
_____ cubic inches

4



Volume:
_____ cubic inches

5



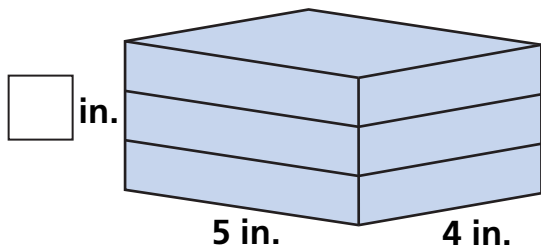
Volume:
_____ cubic inches



6 Explain how you found the volume of the figure in Problem 5.

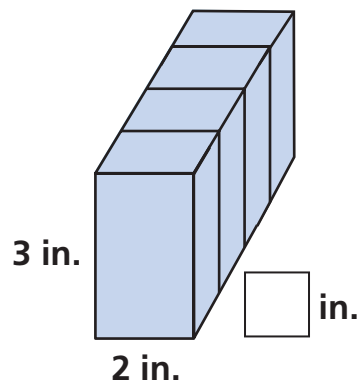
Find the volumes of these rectangular prisms in cubic inches.

7



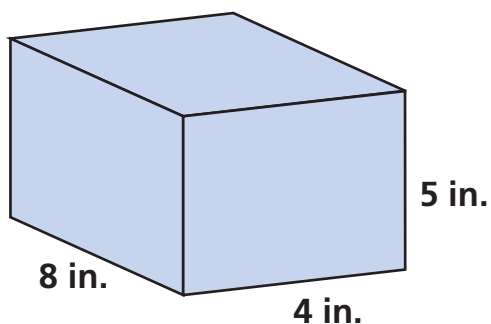
Volume: _____ cubic inches

8



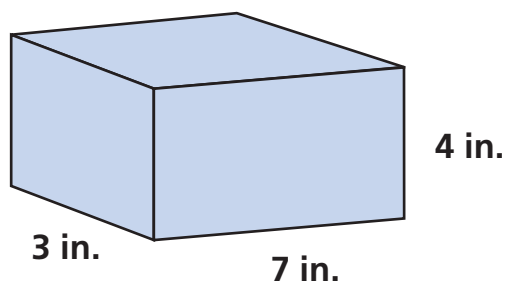
Volume: _____ cubic inches

9



Volume: _____ cubic inches

10



Volume: _____ cubic inches

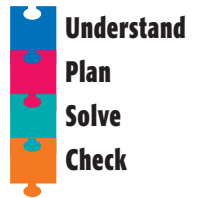
11 Challenge Think of a prism with a volume of 30 cubic inches. What are the dimensions of the prism you thought of?

in. \times in. \times in.

Problem Solving Strategy

Act It Out

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.11A, 4.11C, 4.11D, 4.14C, 4.16B


- 1 A cardboard box has a volume of 48 cubic feet. Give four possible sets of measurements that could be its dimensions.

 feet \times feet \times feet

 feet \times feet \times feet

 feet \times feet \times feet

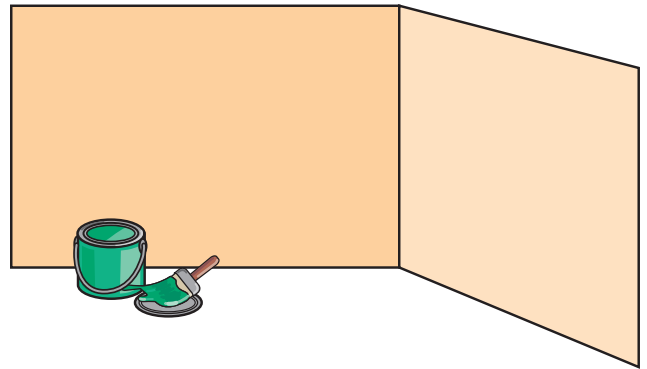
 feet \times feet \times feet

- 2 Melissa folded a net and made a cube. She measured one of the edges as 4 inches long. How much paper did she use to make the cube? _____

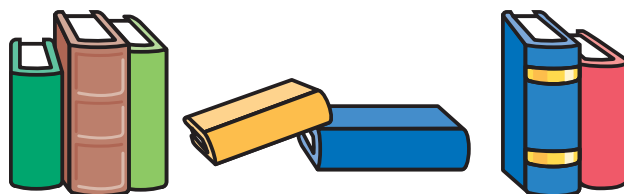
- 3 The Gangulis are painting their bedroom walls. To figure out how much paint they need, they will find the area of the walls in the rectangular room without worrying about windows and doors. One wall is 10 feet long and the other wall is 12 feet long. Both walls are 8 feet high.

An estimate of the total area of the room's four walls is _____ sq ft.

The actual area of the room's four walls is _____ sq ft.



- 4 Cory is mailing some books that are each 1 inch by 4 inches by $5\frac{1}{2}$ inches. He uses a box that is 4 inches by 3 inches by $5\frac{1}{2}$ inches. How many books can he send in the box? _____

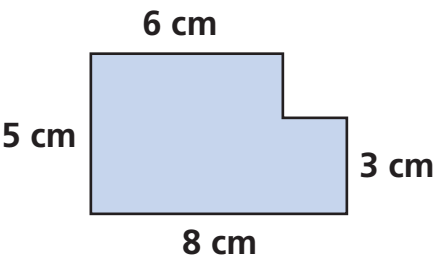


_____ books

Problem Solving Test Prep

Choose the correct answer.

- 1 What are the length and width of a rectangle that has the same perimeter as the figure?

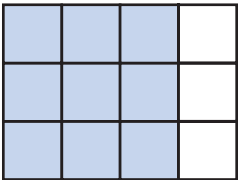


- A. 3 cm by 6 cm C. 8 cm by 5 cm
B. 3 cm by 8 cm D. 8 cm by 6 cm

- 2 Which is the best estimate of 391×42 ?

- A. 1,200 C. 12,000
B. 1,600 D. 16,000

- 3 Which pair of equivalent fractions matches the shaded area of the figure below?



- A. $\frac{3}{4} = \frac{8}{12}$ C. $\frac{1}{4} = \frac{3}{12}$
B. $\frac{3}{4} = \frac{9}{12}$ D. $\frac{2}{3} = \frac{8}{12}$

- 4 Which is the only number that is NOT between 21.8 and 21.9?

- A. 21.81 C. 21.89
B. 21.88 D. 21.91

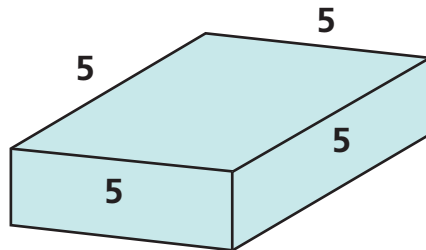
Show What You Know

Solve each problem. Explain your answer.

- 5 Serena has 43 small cubes. Can she make a rectangular prism using all the cubes? If not, what is the greatest number of cubes she can use? Explain how you decided.

- 6 Alex has 35 small cubes. He begins building a staircase in which the first step has 1 cube, the next has 2 cubes, and so on. Can he use all 35 cubes? If not, how many will he have left? Explain.

All of the faces of this polyhedron are rectangles. [Lessons 1, 2, and 3](#)



1 The polyhedron is a: Pyramid or Prism or Cone

2 How many of the polyhedron's faces are squares?

_____ faces

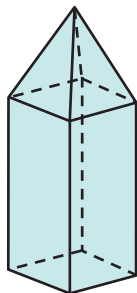
3 Circle a pair of parallel edges.

4 Put on "X" on an edge that is perpendicular to one of the edges you just circled.

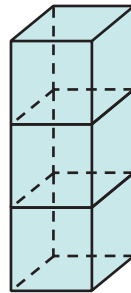
What figures make each tower?

Use Pyramid, Prism, Cone, and Cylinder. [Lesson 3](#)

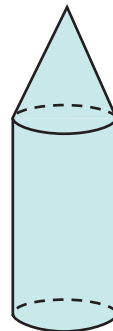
5



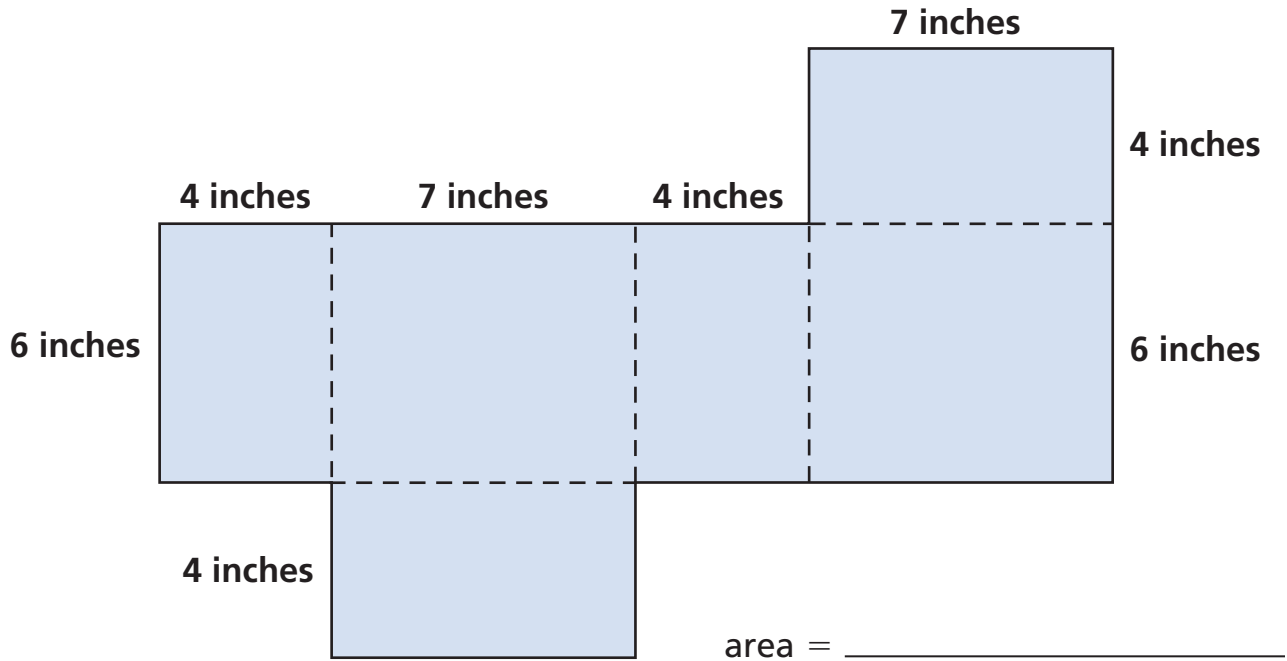
6



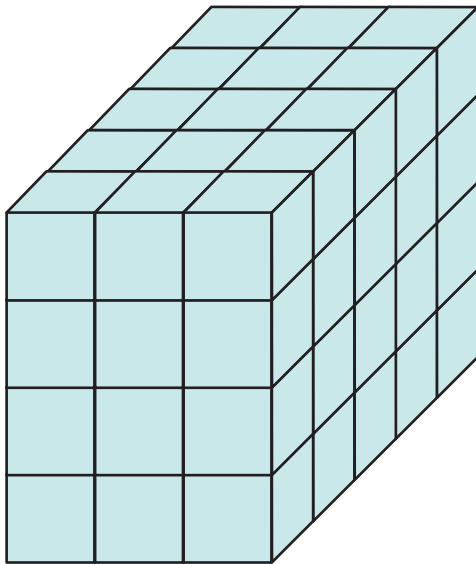
7



- 8 Here is a small copy of a net. All of the figures are rectangles. It is marked with the actual dimensions of the three-dimensional figure. What is the total area of the faces of the three-dimensional figure? [Lesson 4](#)



- 9 What is the volume of this rectangular prism? [Lessons 5 and 6](#)



Volume = _____ cubes

- 10 Alexia is packing her baby sister's toys. There are 27 blocks to pack. After Alexia puts them all into one box, there is no extra space in the box for anything else. What size might the box be? Explain. [Lesson 7](#)

Introducing Negative Numbers

NCTM Standards 1, 4, 6, 7, 8, 9, 10

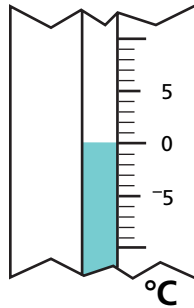
TEKS 4.12A, 4.14A

Brrr! It's very cold this week. Every day at 6 A.M. Nina went outside and measured the temperature. Here's the information that she recorded. Fill in the missing information.

1

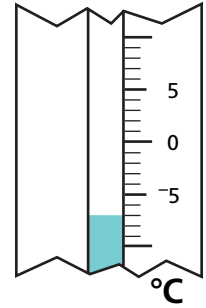
Monday

_____ °C



2

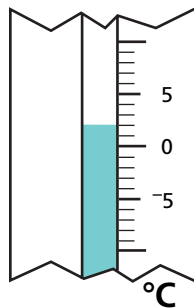
Tuesday



Change from Monday _____ 7° lower

3

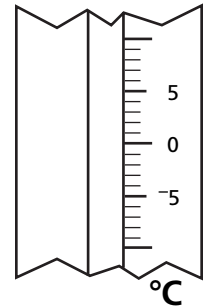
Wednesday



Change from Tuesday _____

4

Thursday

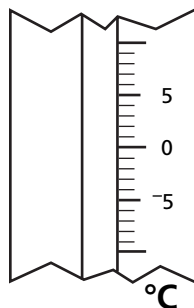


Change from Wednesday _____ 6° higher

5

Friday

_____ -3° C

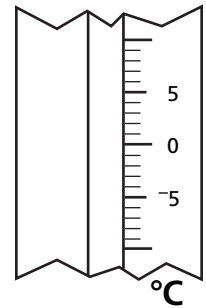


Change from Thursday _____

6

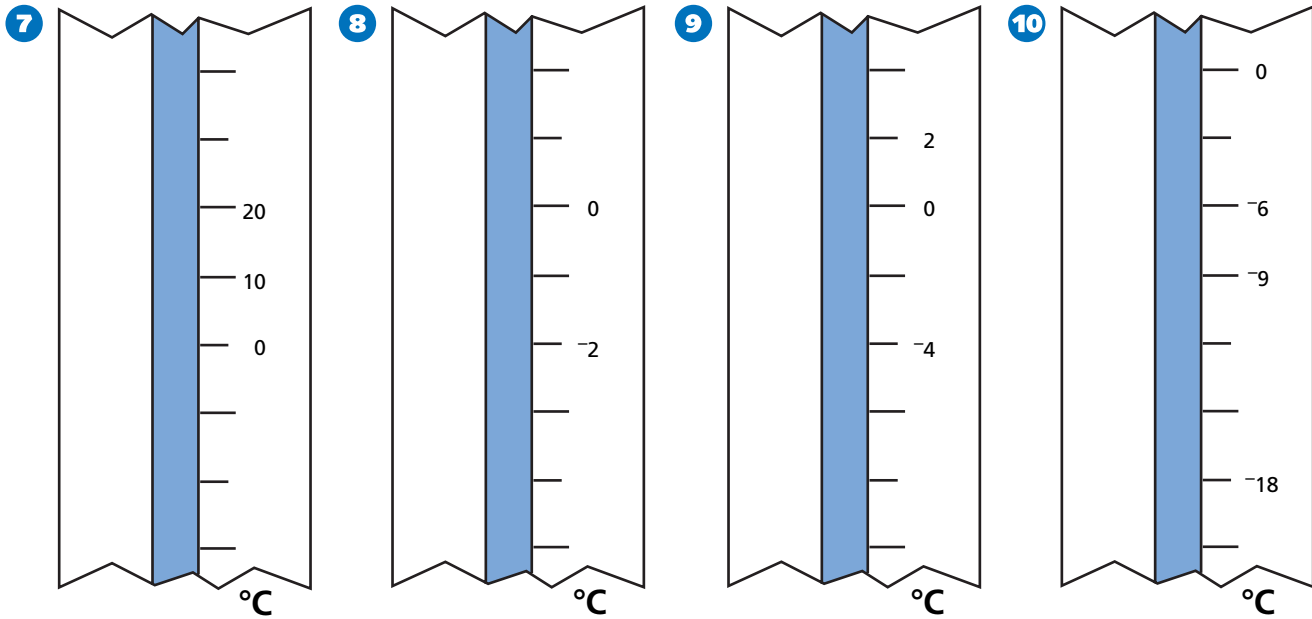
Saturday

_____ -8° C



Change from Friday _____

Fill in the missing temperatures on each thermometer.



11 The lowest temperature this March was 5° Celsius.

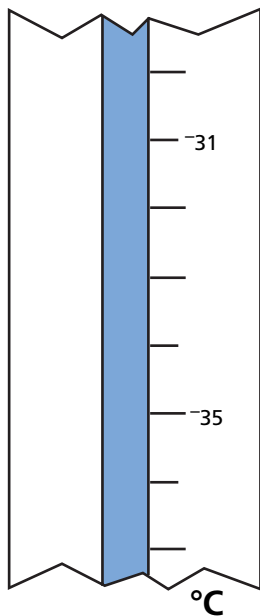
In June, the lowest temperature was 13°C warmer than in March.

In January, the lowest temperature was 30°C colder than in June.

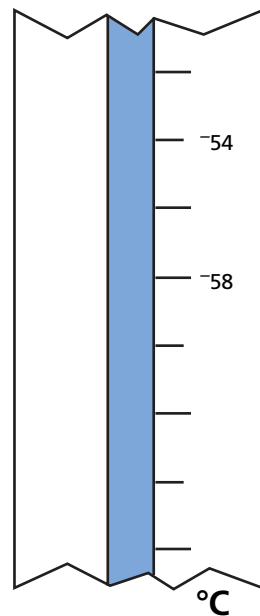
What was the lowest temperature in January? _____



12 Challenge



13 Challenge

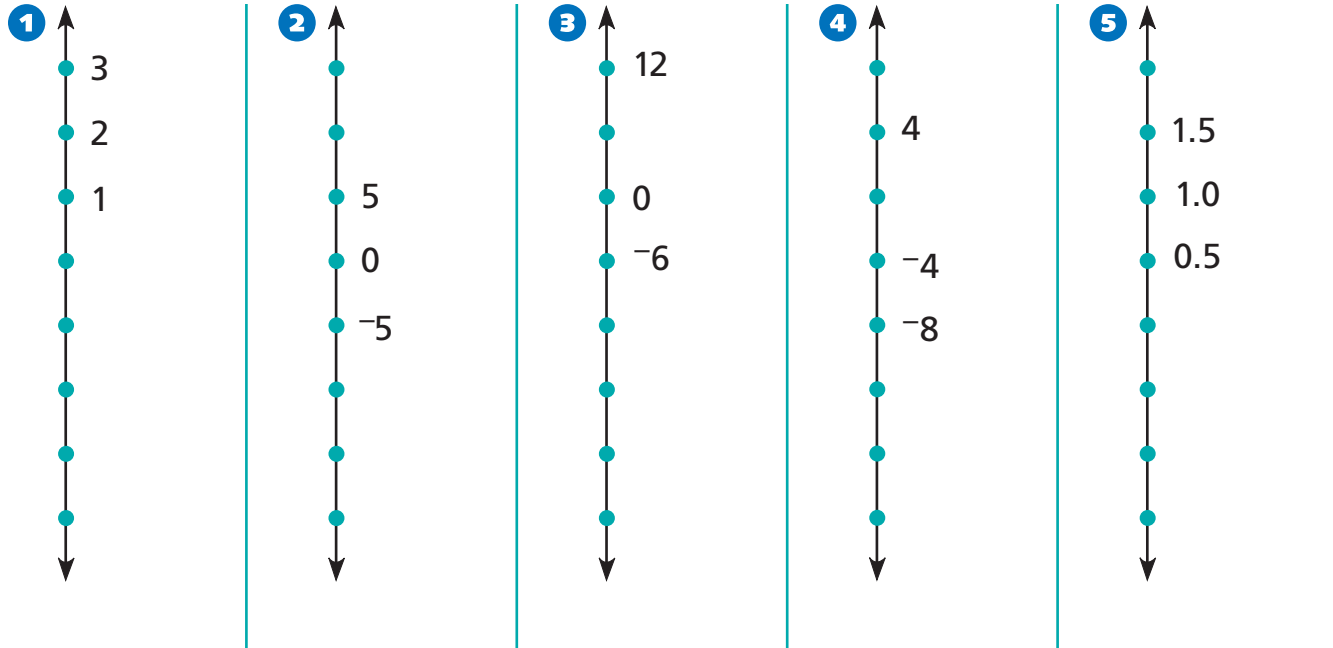


Negative Numbers on the Number Line

NCTM Standards 1, 4, 6, 7, 8, 9, 10

 TEKS 4.10

Fill in the missing numbers on each number line.





Use this number line to help answer the questions.

- 11** Start at 2. Jump backward 4 spaces.

Where are you? _____

- 12** Start at -7 . Jump forward 3 spaces.

Where are you? _____

- 13** Start at -5 . Jump forward 6 spaces.

Where are you? _____

- 14** Start at 4. Jump backward 4 spaces. Then jump backward 3 spaces.

Where are you? _____

- 15** Start at -11 . Jump forward 5 spaces. Then jump forward 1 space.

Where are you? _____

- 16** Start at -4 . Jump forward 2 spaces. Then jump forward 3 spaces. Then jump backward 4 spaces.

Where are you? _____

- 17** Yesterday's highest temperature was 10° Celsius. Today's high temperature was 15° colder than yesterday's. The forecast says tomorrow's high will be 3° warmer than today's.

What is the predicted high temperature for tomorrow? _____



18 Challenge

Start at $2\frac{1}{2}$. Jump forward 3 spaces. Then jump backward 10 spaces.

Where are you? _____

19 Challenge

Start at 1. Jump forward 1 half space. Then jump backward 4 half spaces.

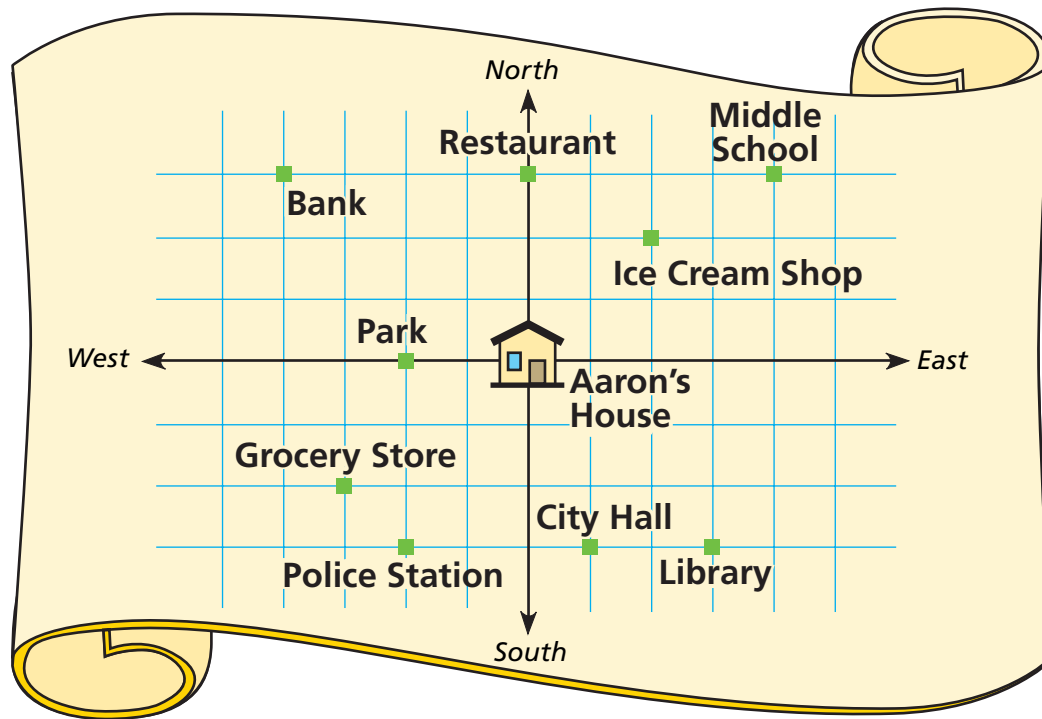
Where are you? _____

Navigating on a Coordinate Grid

NCTM Standards 1, 4, 6, 7, 8, 9, 10

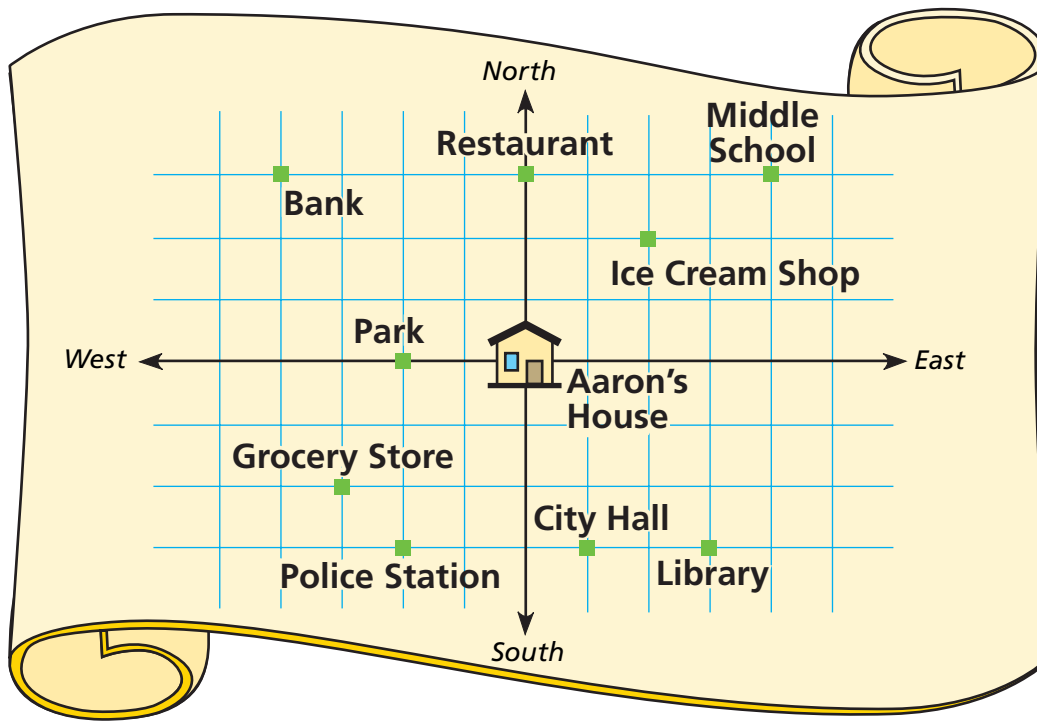
 TEKS 4.14A

Aaron's house is in the center of the map. The lines on the map are the streets in his neighborhood.



Aaron is new in town. He started making some cards to remind him how to get to different places from his house. Because the streets in town form a grid, he recorded each building the way mathematicians would. Complete each card.

1 School (4,3)	2 Library (3,-3)	3 Bank (____,____)	4 Grocery Store (-3,-2)	5 Home (0,____)
6 Ice Cream shop (____,____)	7 Park (____,0)	8 Restaurant (____,____)	9 _____ (1,-3)	10 Police Station (____,____)



Some of the places Aaron likes to go are not printed on the map.

- 11 Aaron's sister goes to high school. Draw a star on the map to show where the high school is.

★ **High School**
(5,3)

- 12 Sometimes Aaron visits his friend Mark. Draw a triangle on the map to show where Mark's house is.

▲ **Mark's House**
(-5,-3)

In these questions, "How far" always means "How many blocks, walking along the streets."

- 13 How many blocks is the middle school from the restaurant? _____
- 14 How many blocks is Aaron's home from the park? _____
- 15 How far is City Hall from the library? _____
- 16 How far is the police station from City Hall? _____
- 17 How far is Mark's house from the library? _____
- 18 How far is the police station from the park? _____
- 19 How far is the bank from the middle school? _____
- 20 **Challenge** How many blocks is the shortest route from the high school to Mark's house? _____

Points and Lines on a Grid

NCTM Standards 1, 4, 6, 7, 8, 9, 10

 TEKS 4.15A

Follow the directions below.

- 1 Mark A at $(-4, 3)$.

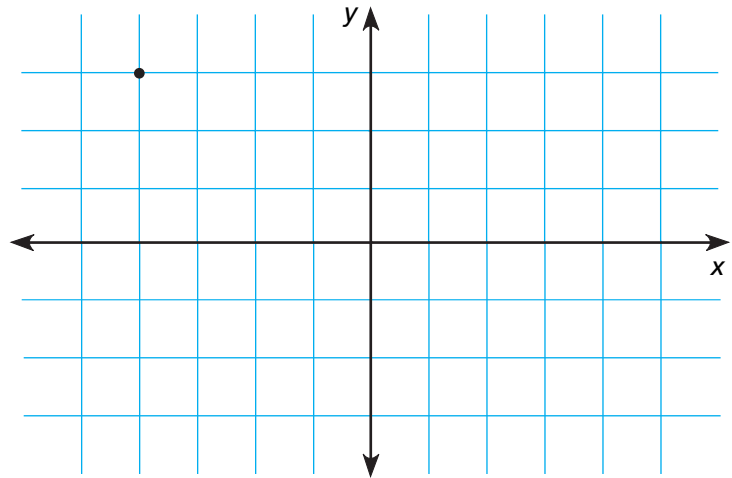
Mark B at $(3, 3)$.

Mark C at $(-4, -2)$.

Draw \overline{AB} .

Draw \overline{BC} .

Draw \overline{AC} .



What shape did you draw? _____

- 2 Mark D at $(3, -2)$.

Mark E at $(3, 2)$.

Mark F at $(-3, 2)$.

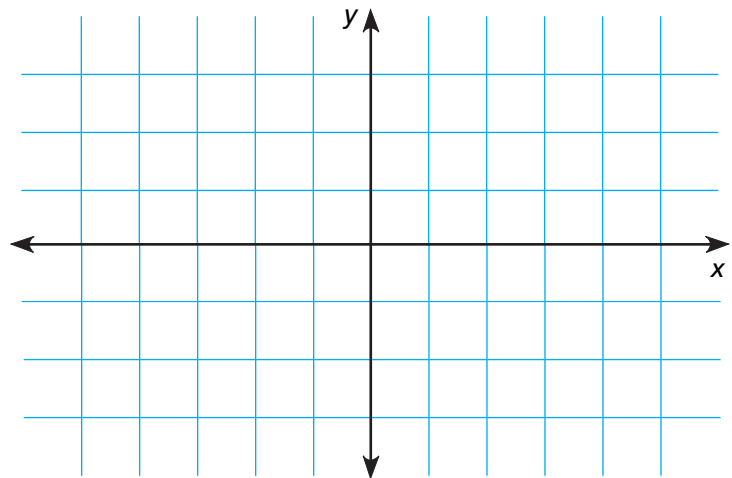
Mark G at $(-3, -2)$.

Draw \overline{DE} .

Draw \overline{EF} .

Draw \overline{FG} .

Draw \overline{GD} .



What shape did you draw? _____

What is its perimeter? _____

What is its area? _____

3 Mark H at $(-3,1)$.

Mark I at $(-1,-3)$.

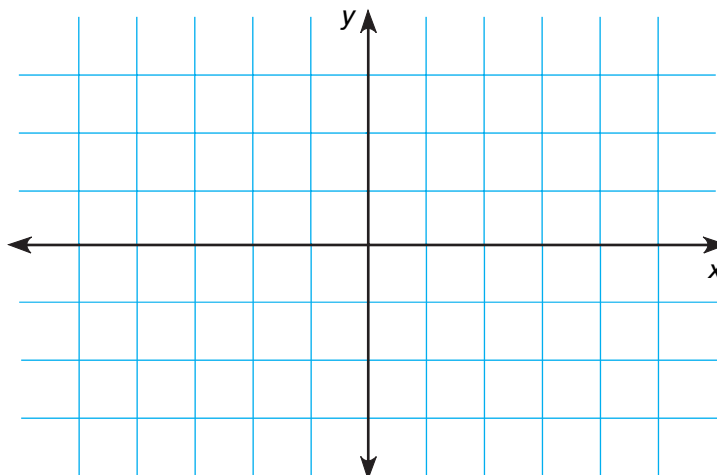
Mark J at $(3,-1)$.

Mark K at $(1,3)$.

Draw \overline{HI} . Draw \overline{JK} .

Draw \overline{IJ} . Draw \overline{HK} .

What shape did you draw?



4 Mark L at $(-3,1)$.

Mark M at $(-1,3)$.

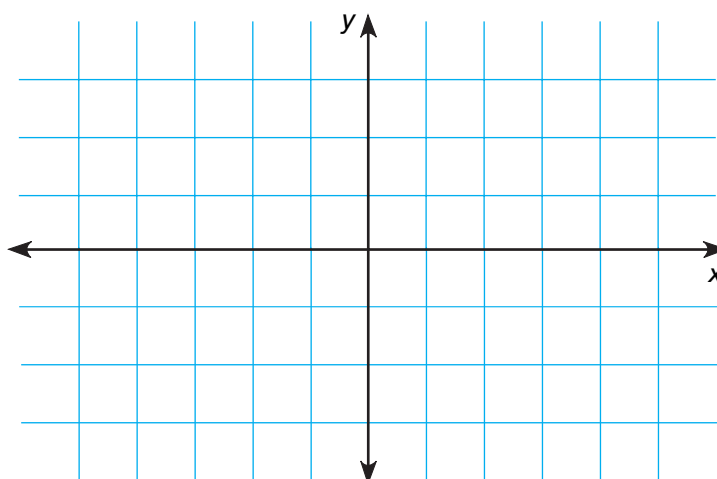
Mark N at $(3,3)$.

Mark O at $(3,-1)$.

Mark P at $(-1,-1)$.

Draw \overline{LM} , \overline{MO} , \overline{ON} , \overline{NP} , and \overline{PL} .

What shape did you draw?



5 Challenge

Mark Q at $(-2,3)$. Mark U at $(-3,0)$.

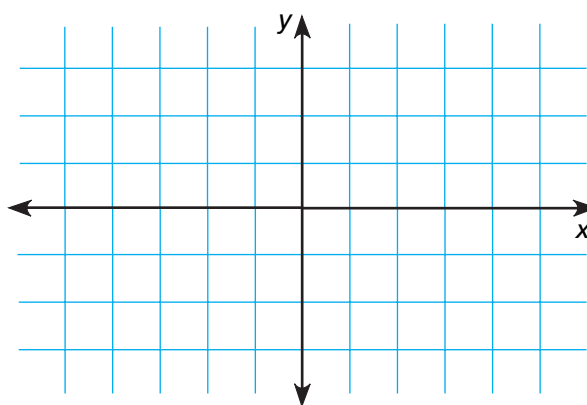
Mark R at $(2,3)$. Mark V at $(0,-1)$.

Mark S at $(0,2)$. Mark W at $(3,0)$.

Mark T at $(-4,1)$. Mark X at $(4,1)$.

Draw \overline{TU} , \overline{VW} , \overline{WX} , and \overline{VU} .

What did you draw?



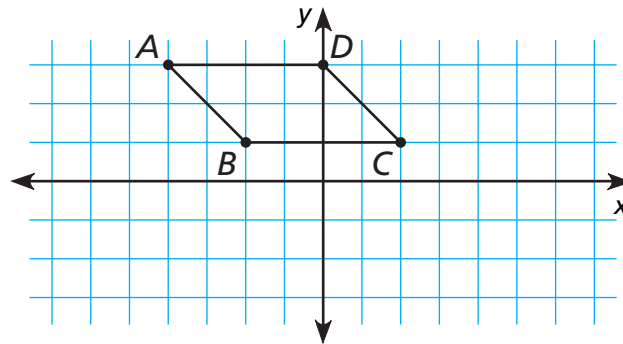
Drawing Figures on a Coordinate Grid

NCTM Standards 1, 4, 6, 7, 8, 9, 10

 TEKS 4.7, 4.15A

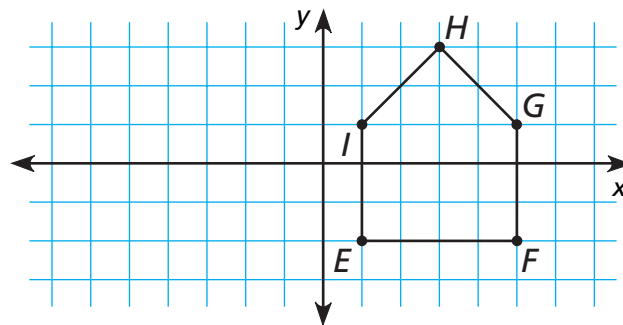
Write the directions for drawing each of the pictures below. Tell which points to mark and which connecting line segments to draw.

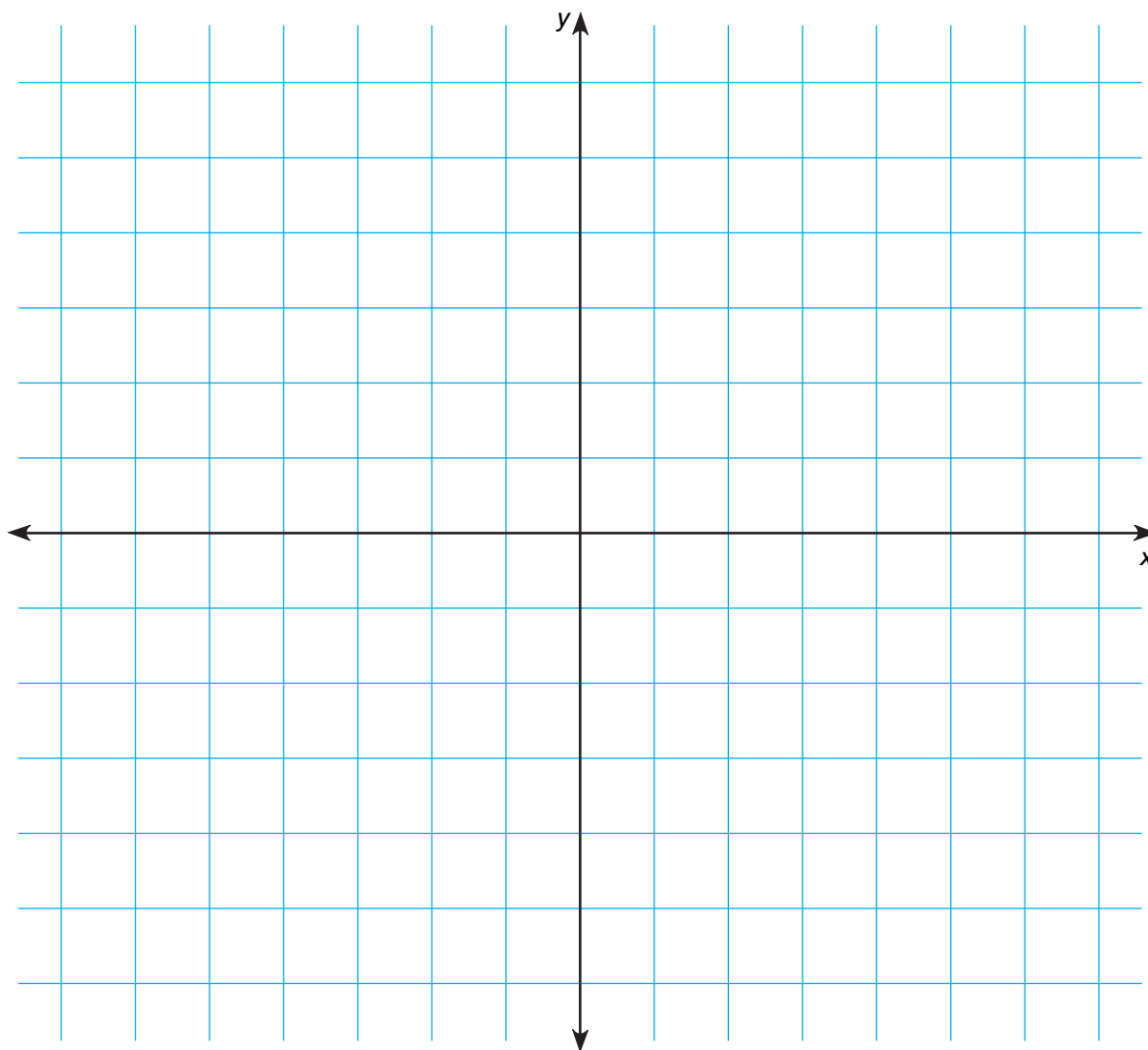
1




Mark A at (____, ____). Mark B at (____, ____).

2





3 Challenge Draw a star like this one  on the grid.
Write directions describing how to draw it.

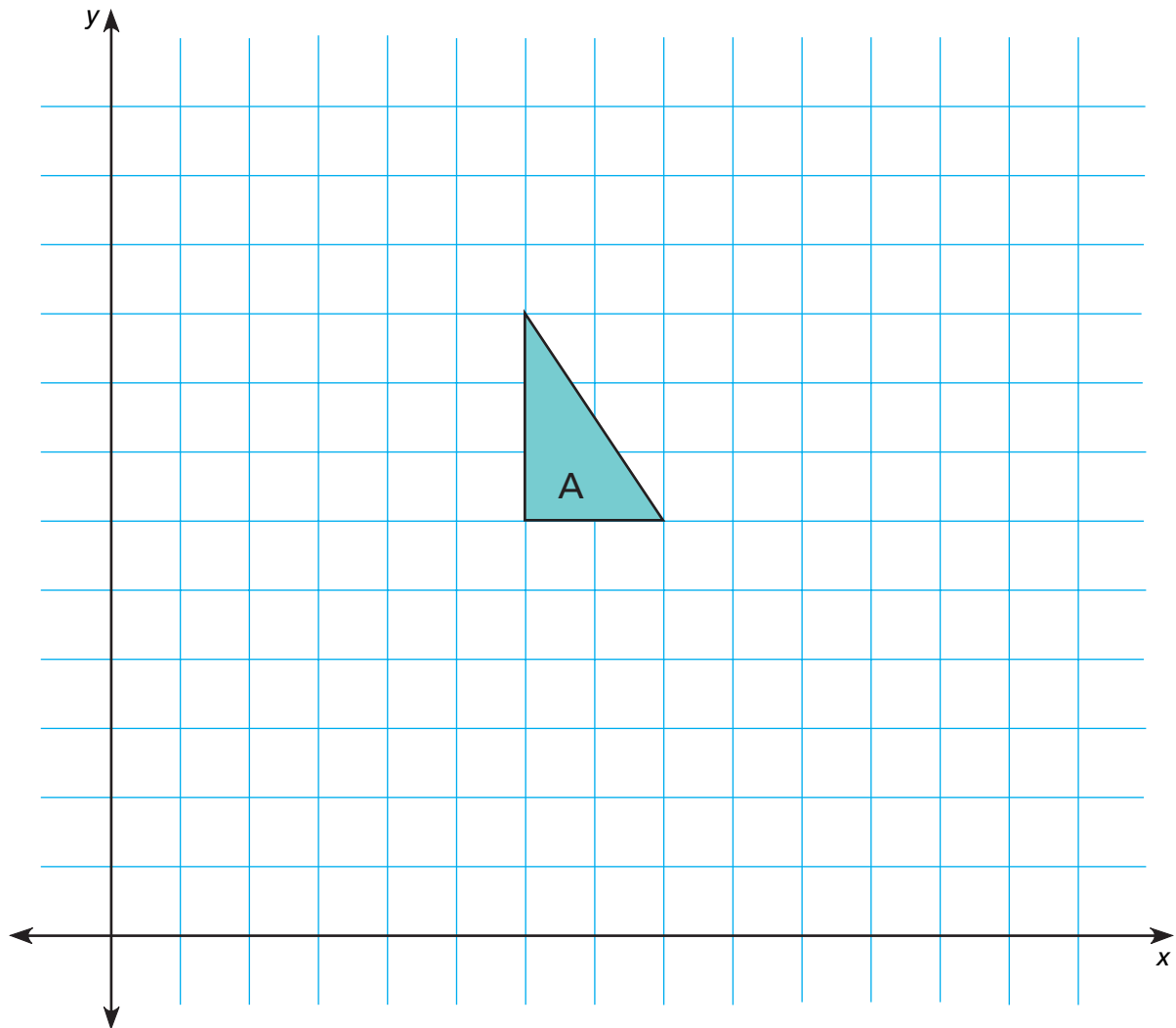
Moving Figures on a Coordinate Grid

NCTM Standards 1, 2, 3, 6, 7, 8, 9, 10

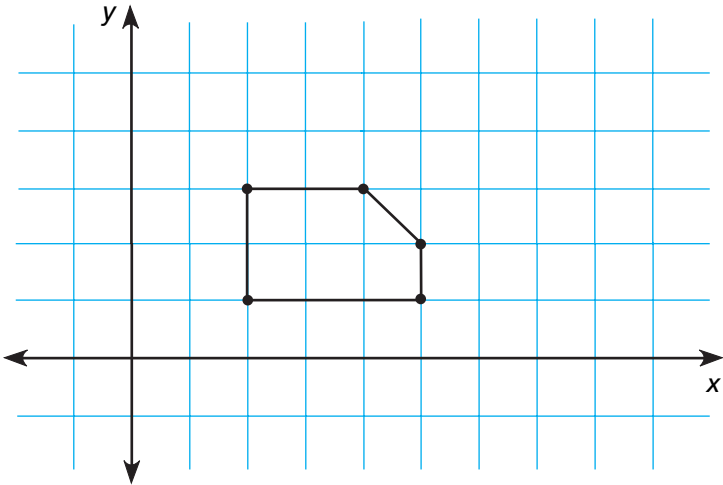
 TEKS 4.7

- 1 Complete the table and draw and label figures H, I, and J.

A	H	I	J
(x,y)	$(x + 5,y)$	$(x,y - 5)$	$(x - 4,y + 4)$
(6,6)	(11,6)		
(6,9)			(2,13)
(8,6)		(8,1)	

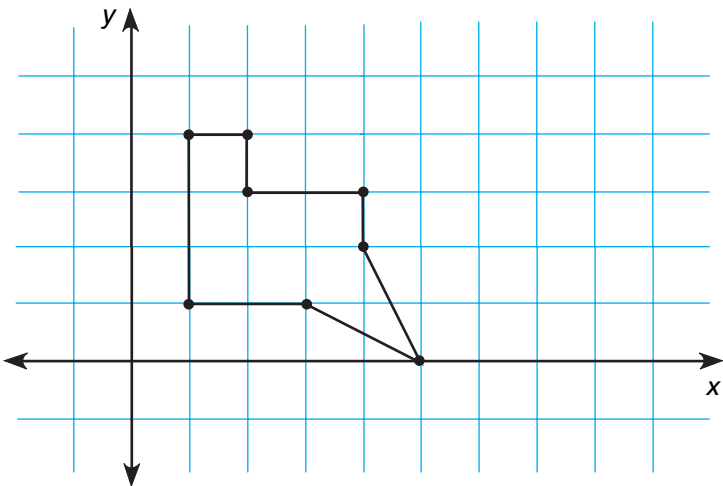


2 Slide this figure 4 spaces to the right.



Original Points	New Points

3 Follow the rule to fill in the pairs of coordinates in the table. Then place and connect the new points to make a new version of the figure.



Original Points	New Points
(x,y)	$(10 - x,y)$
$(1,1)$	$(9,1)$
$(1,4)$	
$(2,4)$	
$(2,3)$	$(8,3)$
$(3,1)$	
$(4,3)$	
$(4,2)$	$(6,2)$
$(5,0)$	

How did the figure move?



4 **Challenge** Describe how you think a figure would move if, for each point, you subtracted 3 from the first coordinate and added 2 to the second coordinate.

Number Sentences and Straight Lines

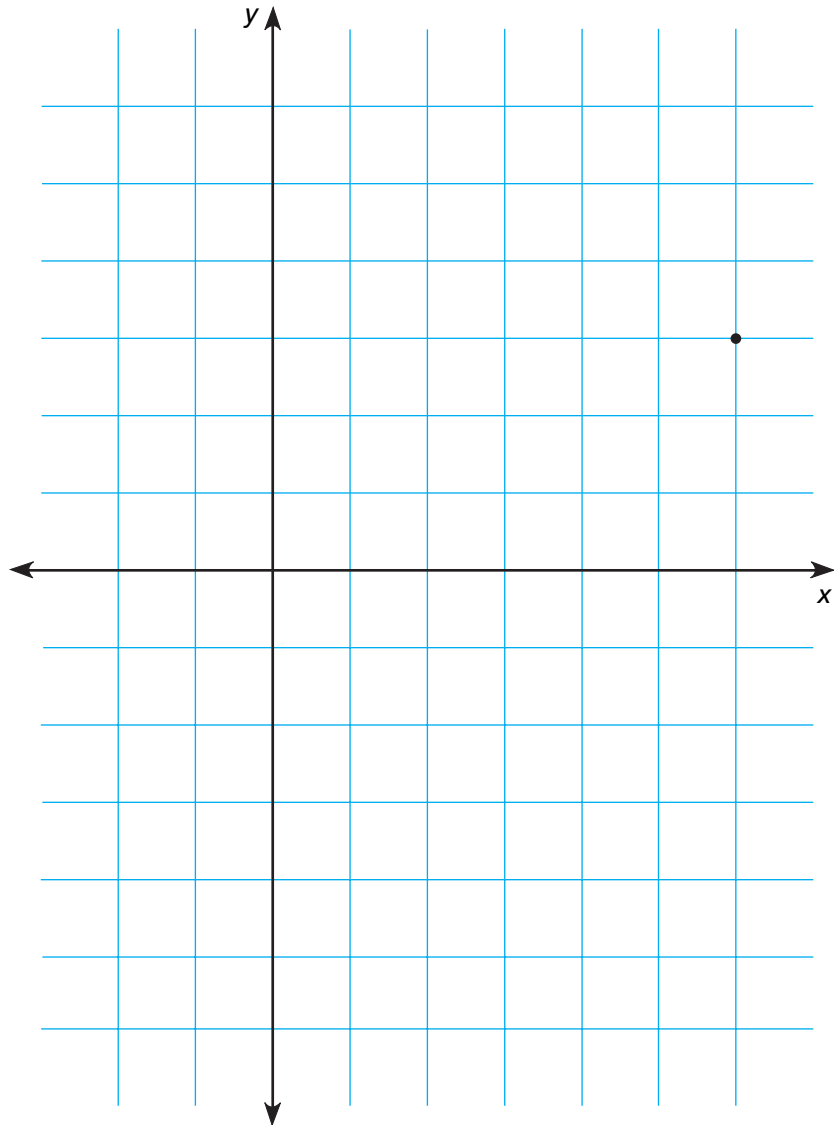
NCTM Standards 1, 2, 3, 6, 7, 8, 9, 10

 TEKS 4.7, 4.14A, 4.16A

- 1 Graph the line whose points all fit the sentence $y = x - 3$.

Fill in and use the table to help you find some points on the line.

(x,y)
$(6,3)$
$(0, \underline{\quad})$
$(\underline{\quad}, 0)$
$(5, \underline{\quad})$
$(\underline{\quad}, 4)$
$(-3, \underline{\quad})$
$(\underline{\quad}, -1)$
$(\underline{\quad}, -5)$



-

(x,y)
$(1,3)$
$(0,2)$
$(_,0)$
$(-4,_)$
$(3,_)$
$(_,4)$
$(_,1)$
$(-5,_)$



-

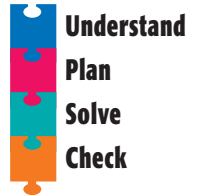
A scatter plot showing the relationship between the number of cookies ordered and the number of cookies sent. The x-axis is labeled "Number of Cookies Ordered" and ranges from 1 to 11. The y-axis is labeled "Number of Cookies Sent" and ranges from 1 to 11. The data points are plotted as follows:

Number of Cookies Ordered	Number of Cookies Sent
1	1
2	2
3	3
4	4
5	5
6	7
7	8
8	9
9	10
10	11

Problem Solving Strategy

Draw a Picture

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.14B, 4.14C


- 1** Jessica looked at the thermometer every three hours and recorded how the temperature changed. At 6:00 A.M., the temperature was -10°C . At 9:00 A.M., it was 9° warmer. At noon, it was 3° warmer than at 9:00. At 3:00 P.M., it was 5° colder than at noon. At 6:00 P.M., it was 8° colder than at 3:00.

What was the temperature at 6:00 P.M.? _____

- 2** Ian and Jenwa played a card game in which you score points for combinations of cards and lose points for cards left in your hand. They played 6 rounds. Here is their score sheet:

	Ian	Jenwa
Round 1	6	-4
Round 2	-7	6
Round 3	5	-3
Round 4	-4	-5
Round 5	-6	9
Round 6	3	-5

What was Ian's final score? _____

What was Jenwa's final score? _____

Who had the higher final score? _____

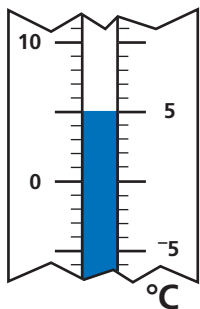
- 3** A snail fell down a hole and is crawling up to the surface. Every day the snail crawls up 3 feet, but every night it slides back down 2 feet. On Monday morning, the snail is 5 feet under ground.

On what day will the snail get out of the hole? _____

Problem Solving Test Prep

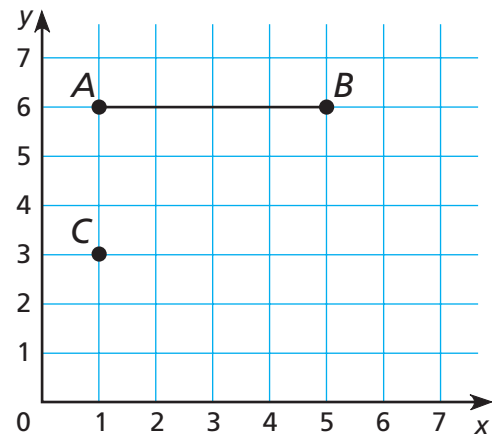
Choose the correct answer.

- 1 What will the temperature be if the temperature drops 9°C?

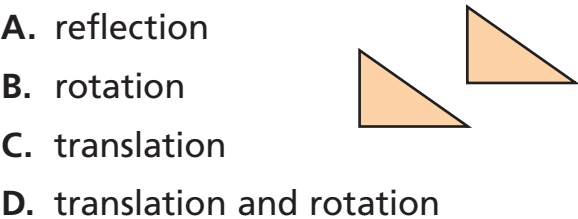


- A. 5°C C. -4°C
B. 4°C D. -5°C
- 2 A rectangular prism is 8 cm long, 4 cm wide, and 2 cm high. What are the length, width, and height of a cube with the same volume?
- A. 8 centimeters
B. 4 centimeters
C. 3 centimeters
D. 2 centimeters

- 3 Line segment \overline{AB} is parallel to \overline{CD} . Which could be the coordinates of point D ?



- A. (5,6) C. (6,1)
B. (1,6) D. (5,3)
- 4 Which transformation is shown?



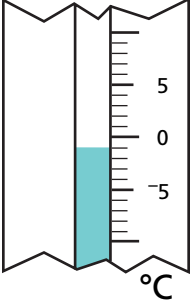
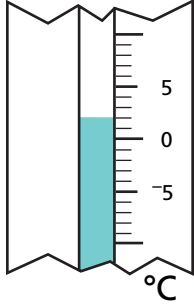
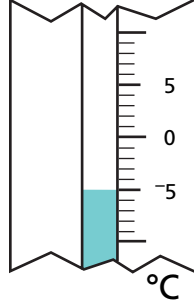
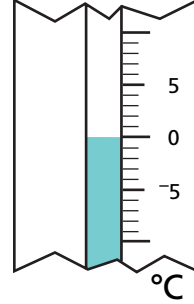
Show What You Know

Solve each problem. Explain your answer.

- 5 A game spinner has 6 equal sections labeled 1–6. Name an outcome that would give two players an equal a chance of winning. Explain.

- 6 A bar graph shows that the Tigers won 9 baseball games in April, 3 more than that in May, and 2 fewer in June than in April. How many games did the team win in the 3 months? Explain.

Every day at 6 A.M., Ming went outside and measured the temperature. Here's the information that she recorded. Fill in the missing information. [Lesson 1](#)

<p>1</p>  <p>Monday _____°C</p>	<p>2</p>  <p>Tuesday _____°C</p> <p>Change from Monday 3° higher _____</p>	<p>3</p>  <p>Wednesday -5°C</p> <p>Change from Tuesday _____</p>	<p>4</p>  <p>Thursday _____°C</p> <p>Change from Wednesday 5° higher _____</p>
---	--	---	--

Use this number line to help answer the questions below. [Lesson 2](#)



5 Start at -5. Jump backward 6 spaces. Then jump forward 3 spaces.
Where are you? _____

6 Start at 10. Jump backward 8 spaces. Then jump backward 5 spaces.
Where are you? _____

7 Start at 3. Jump forward 3 spaces. Then jump backward 7 spaces.
Where are you? _____

8 Start at -8. Jump forward 10 spaces. Then jump backward 6 spaces.
Where are you? _____

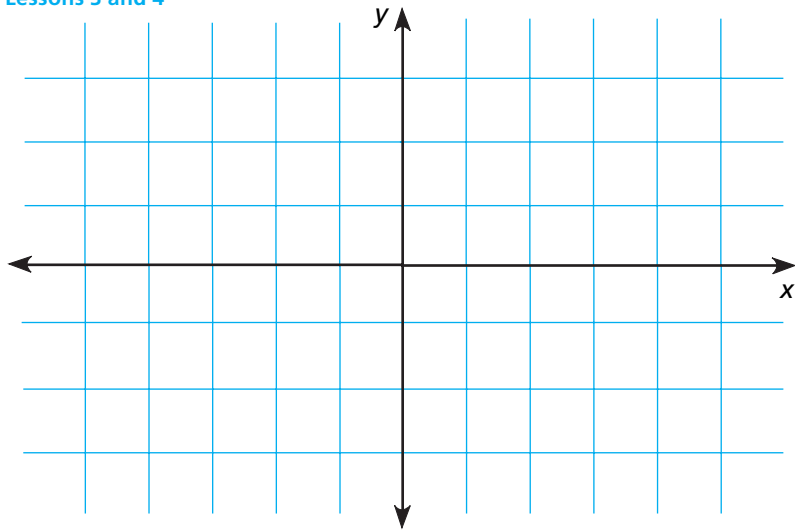
9 Mark A at $(0,2)$ Draw \overline{AC} Lessons 3 and 4

10 Mark B at $(2,0)$ Draw \overline{AD}

11 Mark C at $(2,-2)$ Draw \overline{BD}

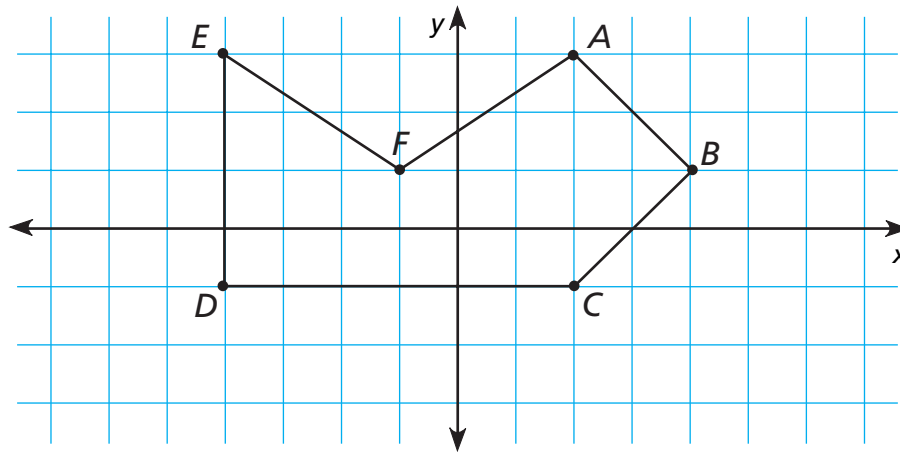
12 Mark D at $(-2,-2)$ Draw \overline{CE}

13 Mark E at $(-2,0)$ Draw \overline{BE}



What shape did you draw?

14 Write the directions for drawing the figure below.
Tell which point to mark and which connecting lines
to draw. Lesson 5



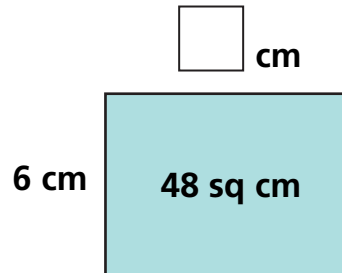
Finding Missing Dimensions

NCTM Standards 1, 2, 4, 6, 7, 8, 9, 10

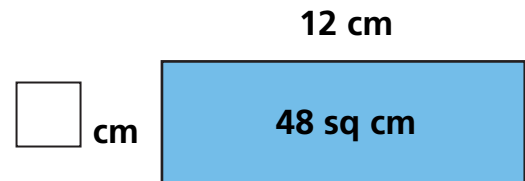
 TEKS 4.4A, 4.4C, 4.4D, 4.4E

Find the missing length or width of the following rectangles.

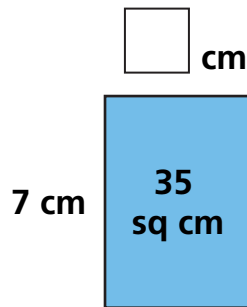
1



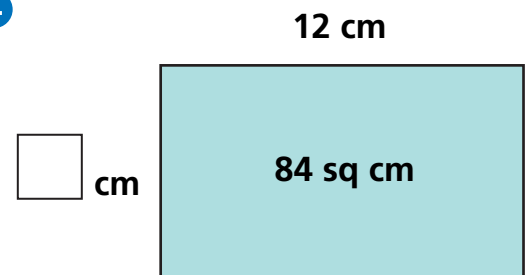
2



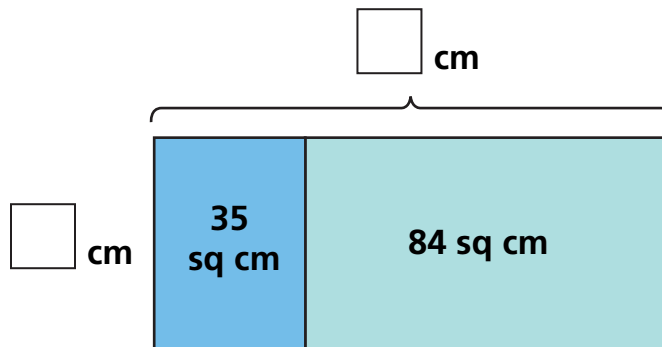
3



4

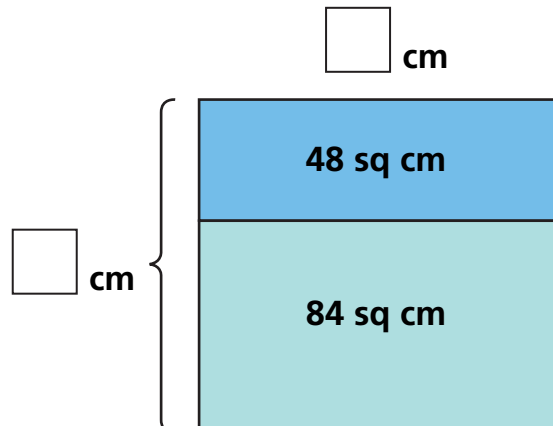


5



Total Area = _____ sq cm

6



Total Area = _____ sq cm

Solve.

- 7 Antonio put all 216 of his songs on 18 CDs. When he was finished, he was surprised to notice that each CD had exactly the same number of songs. How many songs were on each CD? Show your work.

_____ songs

- 8 There are 840 inches in the perimeter of Mr. Yang's classroom. How many feet are in the perimeter? Show your work.

_____ feet

9

$$\begin{array}{r} 16 \\ \times \square \\ \hline 144 \end{array}$$

10

$$22 \times \square = 242$$

11

$$\square \times 12 = 96$$

- 12 **Challenge** Put one digit in each box to make a true sentence.

$$\square \square \times \square \square = 2 \square 5$$

Finding Missing Factors

NCTM Standards 1, 2, 4, 6, 7, 8, 9, 10

 TEKS 4.4C, 4.4E

Complete the multiplication puzzles.

Rule I: Only 0, 1, 2, 4, 8, or 16 can go in the **green** hexagons.

Rule II: The number in the **orange** hexagon must be the sum of the numbers in the **green** hexagons.

0	1	2	4	8	16
---	---	---	---	---	----

1 $4 \times \text{8} = \square$
 $4 \times \text{1} = \square$
 $4 \times \text{0} = \square$

 $4 \times \text{9} = \square$

2 $7 \times \text{4} = \square$
 $7 \times \square = \square$
 $7 \times \square = \square$

 $7 \times \square = \text{42}$

3 $9 \times \text{4} = \square$
 $9 \times \square = \square$
 $9 \times \square = \square$

 $9 \times \text{5} = \square$

4 $4 \times \square = \square$
 $4 \times \text{2} = \square$
 $4 \times \square = \square$

 $4 \times \text{10} = \square$

5 $3 \times \text{2} = \text{6}$
 $3 \times \square = \square$
 $3 \times \square = \square$

 $3 \times \text{3} = \text{9}$

6 $7 \times \square = \square$
 $7 \times \square = \square$
 $7 \times \square = \square$

 $7 \times \text{7} = \square$

7 $3 \times \square = \square$
 $3 \times \square = \square$
 $3 \times \square = \square$
 $3 \times \square = \square$

 $3 \times \text{12} = \square$

8 $5 \times \square = \square$
 $5 \times \square = \square$
 $5 \times \square = \square$
 $5 \times \square = \square$

 $5 \times \square = \text{55}$

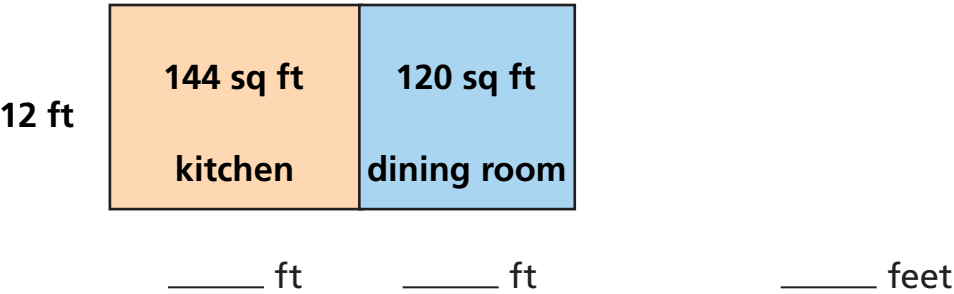
9 $6 \times \square = \square$
 $6 \times \square = \square$
 $6 \times \square = \square$
 $6 \times \square = \square$

 $6 \times \square = \text{42}$

Again, use 0, 1, 2, 4, 8, or 16 to build the missing factor in the orange hexagon.

0	1	2	4	8	16
10 $\square \times \text{hexagon} = \square$ $\square \times \text{hexagon} = \square$ $\square \times \text{hexagon} = \square$ <hr/> $6 \times \text{hexagon} = \boxed{54}$	11 $\boxed{8} \times \text{hexagon} = \square$ $\square \times \text{hexagon} = \square$ $\square \times \text{hexagon} = \square$ <hr/> $8 \times \text{hexagon} = \boxed{56}$	12 $\square \times \text{hexagon} = \square$ $\square \times \text{hexagon} = \square$ $\square \times \text{hexagon} = \square$ <hr/> $3 \times \text{hexagon} = \boxed{18}$			
13 $4 \times \text{hexagon} = \boxed{32}$	14 $5 \times \text{hexagon} = \boxed{35}$	15 $3 \times \text{hexagon} = \boxed{42}$			

16 Challenge Lu is doing work on her house. She’s tearing down the wall that separates the kitchen from the dining room. The width of each room is 12 feet. The new room will be a long rectangular space. The old kitchen floor had an area of 144 square feet, and the old dining room floor had an area of 120 square feet. What is the length of the new joined room?



Finding Missing Factors More Efficiently

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.4B, 4.4D

Rule I: Use only numbers from the **green** block to fill in the **green** hexagons.

Rule II: Try to use the largest number possible at each step.

Rule III: Use a zero for any green hexagon that you do not need.

0

1

2

3

6

9

18

1 starting number: 45

$$9 \times \text{3} = \square$$

What's left?

$$9 \times \square = \square$$

What's left?

$$9 \times \square = \square$$

What's left?

$$9 \times \text{5} = 45$$

2 starting number: 42

$$7 \times \text{6} = \square$$

What's left?

$$7 \times \text{0} = \square$$

What's left?

$$7 \times \square = \square$$

What's left?

$$7 \times \square = 42$$

3 starting number: 96

$$8 \times \square = \square$$

What's left?

$$8 \times \square = \square$$

What's left?

$$8 \times \square = \square$$

What's left?

$$8 \times \square = 96$$

4 starting number: 75

$$5 \times \square = \square$$

What's left?

$$5 \times \square = \square$$

What's left?

$$5 \times \square = \square$$

What's left?

$$5 \times \square = 75$$

5 starting number: 104

$$8 \times \square = \square$$

What's left?

$$8 \times \square = \square$$

What's left?

$$8 \times \square = \square$$

What's left?

$$8 \times \square = 104$$

6 starting number: 98

$$7 \times \square = \square$$

What's left?

$$7 \times \square = \square$$

What's left?







$$7 \times \square = \square$$

What's left?

$$7 \times \square = 98$$

Again, use 0, 1, 2, 3, 6, 9, or 18 to build the missing factor in the orange hexagon.

0	1	2	3	6	9	18
---	---	---	---	---	---	----

<p>7 starting number: 32</p>	<p>8 starting number: 51</p>	<p>9 starting number: 275</p>
<p>2 ×  = 32</p>	<p>3 ×  = 51</p>	<p>25 ×  = 275</p>
<p>10</p>	<p>11</p>	<p>12</p>
<p>15 ×  = 195</p>	<p>4 ×  = 132</p>	<p>9 ×  = 225</p>

13 **Challenge** Soo Jin wants to give 12 stickers to each of her 8 friends. She has 71 stickers. How many more stickers does Soo Jin need? Show your work.

_____ stickers

Estimating Missing Factors and Quotients

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.4B, 4.4E, 4.16B

Complete the puzzles. Begin by rewriting each division sentence as a multiplication sentence.

Rule I: Use only numbers from the **green** block to fill in the **green** boxes.

Rule II: Try to use the largest number possible at each step.

Rule III: Use a zero for any **green** box that you do not need.

0	1	2	3	4	5	6	7	8	9
0	10	20	30	40	50	60	70	80	90

Hint: Fill in the **green** boxes before the **blue** boxes.

1 $136 \div 8 = \square$ $\boxed{8} \times \square = \boxed{136}$	2 $712 \div 8 = \square$ $\square \times \square = \square$	3 $216 \div 9 = \square$ $\square \times \square = \square$
$8 \times \boxed{10} = \boxed{80}$	$8 \times \square = \square$	$9 \times \square = \square$
What's left? $\boxed{56}$ $8 \times \square = \square$	$8 \times \square = \square$	$9 \times \square = \square$
What's left? \square $8 \times \square = \square$	$8 \times \square = \square$	$9 \times \square = \square$
What's left? \square	\square	\square

Use numbers, words, or pictures to solve these problems.

- 4** Tim and four of his friends found 185 nickels! They shared the coins so that each ended up with the same number of nickels. How many nickels does each have? Write a number sentence to explain your answer.

_____ nickels

- 5** The police department spent \$357 to buy seven identical winter coats for their officers. How much did each coat cost? Write a number sentence to explain your answer.

\$ _____



- 6 Challenge** State Elementary School is having a field day. All 283 students were put onto six different teams as evenly as possible. Did all the teams have the same number of students? Explain your answer.

Dividing Using Multiplication Puzzles

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.4B, 4.4D, 4.4E, 4.15A

Complete the puzzles. Rewrite each division sentence as a multiplication sentence. Choose numbers for the green boxes from this list:

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 20, 30, 40, 50, 60, 70, 80, 90

1 <div style="text-align: right;"> <div style="border: 1px solid green; width: 30px; height: 20px; margin-bottom: 5px;"></div> <div style="border: 1px solid green; width: 30px; height: 20px; display: flex; align-items: center; justify-content: center;">30</div> </div> <div style="text-align: right;">7 $\overline{) 238}$</div>	2 <div style="text-align: right;"> <div style="border: 1px solid green; width: 30px; height: 20px; margin-bottom: 5px;"></div> <div style="border: 1px solid green; width: 30px; height: 20px; display: flex; align-items: center; justify-content: center;"></div> </div> <div style="text-align: right;">9 $\overline{) 432}$</div>	3 <div style="text-align: right;"> <div style="border: 1px solid green; width: 30px; height: 20px; margin-bottom: 5px;"></div> <div style="border: 1px solid green; width: 30px; height: 20px; display: flex; align-items: center; justify-content: center;"></div> </div> <div style="text-align: right;">8 $\overline{) 536}$</div>
$7 \times \text{[green box]} = \text{[purple box]}$ $7 \times 30 = 210$	$9 \times \text{[green box]} = \text{[purple box]}$	$8 \times \text{[green box]} = \text{[purple box]}$
<div style="text-align: right;"> <div style="border: 1px dashed black; width: 30px; height: 20px; margin-bottom: 5px;"></div> <div style="border: 1px solid green; width: 30px; height: 20px; display: flex; align-items: center; justify-content: center;">28</div> </div> $7 \times \text{[green box]} = \text{[purple box]}$	<div style="text-align: right;"> <div style="border: 1px dashed black; width: 30px; height: 20px; margin-bottom: 5px;"></div> <div style="border: 1px solid green; width: 30px; height: 20px; display: flex; align-items: center; justify-content: center;"></div> </div> $9 \times \text{[green box]} = \text{[purple box]}$	<div style="text-align: right;"> <div style="border: 1px dashed black; width: 30px; height: 20px; margin-bottom: 5px;"></div> <div style="border: 1px solid green; width: 30px; height: 20px; display: flex; align-items: center; justify-content: center;"></div> </div> $8 \times \text{[green box]} = \text{[purple box]}$
<div style="text-align: right;"> <div style="border: 1px dashed black; width: 30px; height: 20px; margin-bottom: 5px;"></div> <div style="border: 1px solid green; width: 30px; height: 20px; display: flex; align-items: center; justify-content: center;"></div> </div> $238 \div 7 = \text{[blue box]}$	<div style="text-align: right;"> <div style="border: 1px dashed black; width: 30px; height: 20px; margin-bottom: 5px;"></div> <div style="border: 1px solid green; width: 30px; height: 20px; display: flex; align-items: center; justify-content: center;"></div> </div> $432 \div 9 = \text{[blue box]}$	<div style="text-align: right;"> <div style="border: 1px dashed black; width: 30px; height: 20px; margin-bottom: 5px;"></div> <div style="border: 1px solid green; width: 30px; height: 20px; display: flex; align-items: center; justify-content: center;"></div> </div> $536 \div 8 = \text{[blue box]}$
4 <div style="text-align: right;"> <div style="border: 1px solid green; width: 30px; height: 20px; margin-bottom: 5px;"></div> <div style="border: 1px solid green; width: 30px; height: 20px; display: flex; align-items: center; justify-content: center;"></div> </div> <div style="text-align: right;">6 $\overline{) 582}$</div>	5 <div style="text-align: right;"> <div style="border: 1px solid green; width: 30px; height: 20px; margin-bottom: 5px;"></div> <div style="border: 1px solid green; width: 30px; height: 20px; display: flex; align-items: center; justify-content: center;"></div> </div> <div style="text-align: right;">4 $\overline{) 312}$</div>	6 <div style="text-align: right;"> <div style="border: 1px solid green; width: 30px; height: 20px; margin-bottom: 5px;"></div> <div style="border: 1px solid green; width: 30px; height: 20px; display: flex; align-items: center; justify-content: center;"></div> </div> <div style="text-align: right;">9 $\overline{) 153}$</div>
$6 \times \text{[green box]} = \text{[purple box]}$	$4 \times \text{[green box]} = \text{[purple box]}$	$9 \times \text{[green box]} = \text{[purple box]}$
<div style="text-align: right;"> <div style="border: 1px dashed black; width: 30px; height: 20px; margin-bottom: 5px;"></div> <div style="border: 1px solid green; width: 30px; height: 20px; display: flex; align-items: center; justify-content: center;"></div> </div> $6 \times \text{[green box]} = \text{[purple box]}$	<div style="text-align: right;"> <div style="border: 1px dashed black; width: 30px; height: 20px; margin-bottom: 5px;"></div> <div style="border: 1px solid green; width: 30px; height: 20px; display: flex; align-items: center; justify-content: center;"></div> </div> $4 \times \text{[green box]} = \text{[purple box]}$	<div style="text-align: right;"> <div style="border: 1px dashed black; width: 30px; height: 20px; margin-bottom: 5px;"></div> <div style="border: 1px solid green; width: 30px; height: 20px; display: flex; align-items: center; justify-content: center;"></div> </div> $9 \times \text{[green box]} = \text{[purple box]}$
<div style="text-align: right;"> <div style="border: 1px dashed black; width: 30px; height: 20px; margin-bottom: 5px;"></div> <div style="border: 1px solid green; width: 30px; height: 20px; display: flex; align-items: center; justify-content: center;"></div> </div> $582 \div 6 = \text{[blue box]}$	<div style="text-align: right;"> <div style="border: 1px dashed black; width: 30px; height: 20px; margin-bottom: 5px;"></div> <div style="border: 1px solid green; width: 30px; height: 20px; display: flex; align-items: center; justify-content: center;"></div> </div> $312 \div 4 = \text{[blue box]}$	<div style="text-align: right;"> <div style="border: 1px dashed black; width: 30px; height: 20px; margin-bottom: 5px;"></div> <div style="border: 1px solid green; width: 30px; height: 20px; display: flex; align-items: center; justify-content: center;"></div> </div> $153 \div 9 = \text{[blue box]}$

Complete the puzzles. Rewrite each division sentence as a multiplication sentence. Choose numbers for the green boxes from this list:

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 20, 30, 40, 50, 60, 70, 80, 90

7	8	9
$\begin{array}{r} \square \\ \square \\ 3 \overline{) 291} \end{array}$	$\begin{array}{r} \square \\ \square \\ 8 \overline{) 272} \end{array}$	$\begin{array}{r} \square \\ \square \\ 5 \overline{) 245} \end{array}$
$3 \times \square = \square$	$8 \times \square = \square$	$5 \times \square = \square$
$\begin{array}{r} \square \\ 3 \times \square = \square \end{array}$	$\begin{array}{r} \square \\ 8 \times \square = \square \end{array}$	$\begin{array}{r} \square \\ 5 \times \square = \square \end{array}$
$291 \div 3 = \square$	$272 \div 8 = \square$	$245 \div 5 = \square$



10 Challenge Write a word problem to match $138 \div 6$ and then solve it.

Completing Division Sentences

NCTM Standards 1, 2, 6, 7, 8, 9, 10

TEKS 4.4B, 4.4E, 4.15A, 4.16B

Complete the puzzles.

Rule I: Use only numbers from the **green** block to fill in the **green** boxes.**Rule II:** Try to use the largest number possible at each step.**Rule III:** Use a zero for any **green** box that you do not need.

0	1	2	3	4	5	6	7	8	9
0	10	20	30	40	50	60	70	80	90
0	100	200	300	400	500	600	700	800	900

1

$$\begin{array}{r}
 \square \\
 \square \\
 \square \\
 5 \overline{) 545} \\
 \square \\
 \hline
 \text{What's left? } \square \\
 \square \\
 \hline
 \text{What's left? } \square \\
 \square \\
 \hline
 \text{What's left? } \square \quad 0 \\
 \hline
 545 \div 5 = \square
 \end{array}$$

2

$$\begin{array}{r}
 \square \\
 \square \\
 \square \\
 3 \overline{) 396} \\
 \square \\
 \hline
 \square \\
 \square \\
 \hline
 \square \\
 \square \\
 \hline
 \square \quad 0 \\
 \hline
 396 \div 3 = \square
 \end{array}$$

3

$$\begin{array}{r}
 \square \\
 \square \\
 \square \\
 6 \overline{) 558} \\
 \square \\
 \hline
 \square \\
 \square \\
 \hline
 \square \\
 \square \\
 \hline
 \square \quad 0 \\
 \hline
 588 \div 6 = \square
 \end{array}$$

Divide.

4

$$15 \overline{)225}$$

$$225 \div 15 = \boxed{}$$

5

$$5 \overline{)1,380}$$

$$1,380 \div 5 = \boxed{}$$

6

$$6 \overline{)3,126}$$

$$3,126 \div 6 = \boxed{}$$

- 7 Mr. Green has had 300 students over the course of his teaching career. One-fourth of his students have been 6 years old, one-third have been 7, and the rest have been 8. How many students of each age has Mr. Green taught?

_____ 6-year-olds

_____ 7-year-olds

_____ 8-year-olds

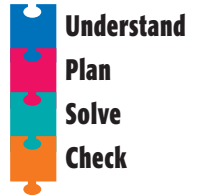


- 8 **Challenge** Write a division problem that has an answer between 111 and 222. Explain the solution.

Problem Solving Strategy

Working Backward

NCTM Standards 1, 2, 4, 6, 7, 8, 9, 10

 TEKS 4.4B, 4.4E, 4.14B, 4.14C, 4.16B


- 1 Charles measured his rectangular playground and found the area to be 432 square feet. He recorded the length as 24 feet but forgot to record the width. What was the width? Show your work.

_____ feet

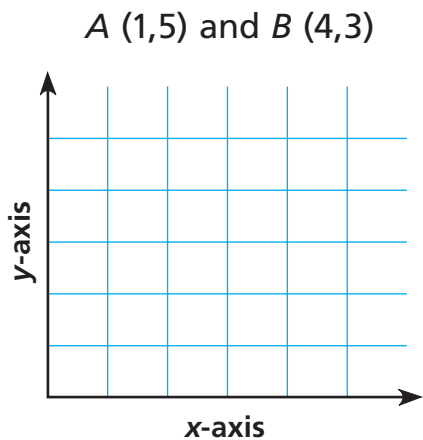
- 2 Mr. Tran made a list of some items he sells in his store. He has 10 umbrellas, 8 beach balls, 13 shovels, and 13 sunglasses. There are beach towels stacked equally on two shelves. Mr. Tran determined there are 76 items. How many towels are on each shelf?

- 3 There are 192 people at a dinner party. An equal number of people are sitting at each of 12 tables. Fifty-seven people ordered steak and 63 people ordered salmon. The same number of people at each table ordered chicken. How many chicken dinners should be served at each table? Explain.

Problem Solving Test Prep

Choose the correct answer.

- 1 By following the grid lines, what is the shortest distance between points A and B ?



- A. 3 units C. 5 units
B. 4 units D. 6 units
- 2 Jerome wants to change 42 inches to feet. Which number sentence should he use?
- A. 42×12 C. 42×3
B. $42 \div 12$ D. $42 \div 3$

- 3 You toss a number cube labeled 1 to 6. What is the probability that you will toss a 5?



- A. $\frac{1}{5}$ C. $\frac{1}{6}$
B. $\frac{5}{5}$ D. $\frac{5}{6}$
- 4 Ms. Carpenter drives 19 miles from home to work. How far does she drive each day going to work and then returning home?
- A. 21 miles C. 38 miles
B. 28 miles D. 39 miles

Show What You Know

Solve each problem. Explain your answer.

- 5 Jean Marie planted 9 rows of tomatoes and 9 rows of beans. Each row has the same number of plants. In all, there are 396 plants. How many plants are in each row? Explain.

- 6 Pablo is walking on a rectangular path. He walks 35 feet, turns right, and walks some more. He turns right and walks another 35 feet. He turns right and walks back to where he began. In all, he walks 100 feet. What is the area of the rectangle? Explain.

Complete the multiplication and division sentences. **Lessons 2 and 3**

1

$$5 \times \text{hexagon} = 135$$

$$5 \times 20 = \square$$

What's left?

$$5 \times \text{hexagon} = \square$$

What's left?

$$5 \times \text{hexagon} = \square$$

What's left?

2

$$7 \times \text{hexagon} = 861$$

$$7 \times \text{hexagon} = \square$$

What's left?

$$7 \times \text{hexagon} = \square$$

What's left?

$$7 \times \text{hexagon} = \square$$

What's left?

3

$$324 \div 9 = \square$$

$$9 \times \square = 324$$

$$9 \times \square = \square$$

$$9 \times \square = \square$$

$$9 \times \square = \square$$

4

$$427 \div 7 = \square$$

$$\square \times \square = 427$$

$$\square \times \square = \square$$

$$\square \times \square = \square$$

$$\square \times \square = \square$$

Circle the best estimate for each problem. Lesson 4

5

32 × ? = 2656

800 80

1,200 60

6

1,200 ÷ 48 = ?

400 30

24 6

Complete the division problems. Lessons 5 and 6

7

5 | 805

8

5 | 290

9

Mikaela worked at the school carnival. She sold a school hat for \$10 and some T-shirts for \$13 each. She collected \$101. How many T-shirts did she sell? Lesson 7

Number Puzzles

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.7, 4.15A, 4.16A, 4.16B

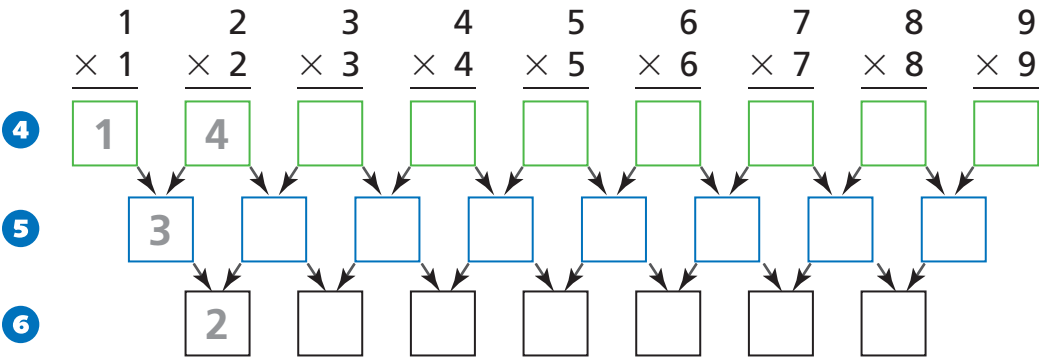
- 1 Complete the chart.

	Think of a whole number between 0 and 10.	Multiply by 9.	Add the digits in your product.
A			
B			
C			
D			
E			
F			
G			
H			
I			

- 2 What do you notice?

- 3 Can you think of any numbers that don't follow this pattern?

As you complete this puzzle, look for patterns. The number in each blue box is the difference between the numbers in the green boxes above it. The number in each black box is the difference between the numbers in the blue boxes above it.



7 Describe the pattern in row 4.

8 Describe the pattern in row 5.



9 **Challenge** Two fourth-grade classes have the same number of students. Each student in these classes made a card for his or her first-grade buddy. One of the teachers also made a card. In the end, there were 49 cards. How many students are in each of the fourth-grade classes? Explain your answer. _____ students

Introducing Variables

NCTM Standards 1, 2, 6, 7, 8, 9, 10

TEKS 4.7, 4.14B, 4.14C, 4.15A

Fill in the missing numbers.

1

		A	B	C	D	E
Think of a number. Put that many counters in the bag.	Ⓢ	4	11			
Add 6. You now have the bag and 6 extra counters.	Ⓢ.....	10		21		
Double it. You now have two bags and 12 extra counters. How many counters all together?	ⓈⓈ.....	20			46	12

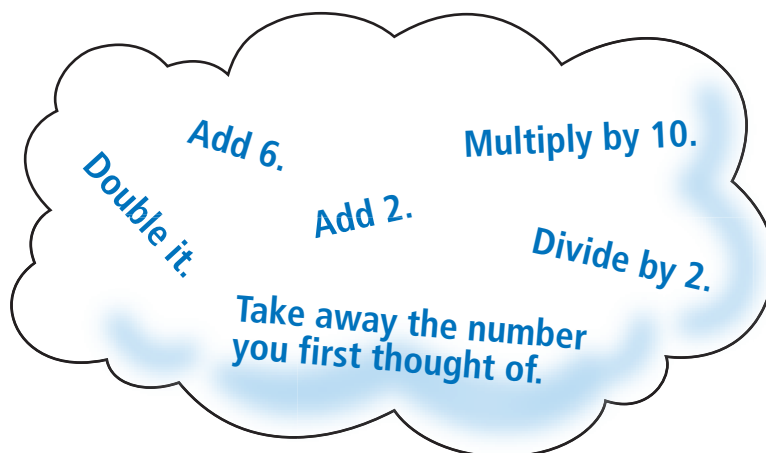
2

		F	G	H	I	J
Think of a number.	Ⓢ		4			
Double it.	ⓈⓈ			0		
Add 6.	ⓈⓈ...					
Divide by 2. How many counters do you have all together?	Ⓢ...	15			20	4

3

		K	L	M	N	O
Think of a number.	Ⓢ	7				
Add 7.	Ⓢ...					
Add the number you thought of first.	ⓈⓈ...					
Subtract 5. How many do you have all together?	ⓈⓈ..		22	52	2	4

- 4 Choose steps to put in your puzzle.
Then complete the puzzle.



Think of a number.	6	20		12	



- 5 **Challenge** Fill in steps that give the correct final number from the given starting number.

Think of a number.	1	15	7	91	
	16	30	22	106	39






Introducing a Shorthand Notation

NCTM Standards 1, 2, 6, 7, 8, 9, 10







 TEKS 4.14B, 4.14C, 4.15A, 4.15B

Complete the puzzles.

1

Words	Pictures	A	B	C	D	E
Think of a number.		7				
Multiply it by 10.	10 		10			
Add 130.	10  + 130			160		
Divide by 5.	2  + 26				50	
Divide by 2.	 + 13					35
Subtract the number you thought of first.						

2

Words	Pictures	Shorthand	F	G	H
Think of a number.		x	3	5	
Add 47.	 + 47	$x + 47$	50		
Double it.	2  + 94	$2x + 94$			
Subtract 75.	2  + 19	$2x + 19$			
Subtract the number you thought of first.	 + 19	$x + 19$			
Subtract 18.	 + 1	$x + 1$			54
Subtract the number you thought of first.					

3

Pictures	Shorthand	I	J
⌘	x	8	
⌘...	$x + 4$		
⌘⌘:::			
⌘⌘::			10
⌘⌘⌘:::			
⌘:			
:			

4

Pictures	Shorthand	K	L
⌘		19	
⌘ + 50			
2 ⌘ + 100			
2 ⌘ + 148			
⌘ + 74			154
74			



5 Challenge Describe each step in the puzzle with words.

Words	Shorthand
Think of a number.	x
	$2x$
	$2x + 5$
	$4x + 10$

Using Shorthand Notation to Complete Number Puzzles

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.14C, 4.15A, 4.15B

Find the missing numbers in these puzzles.

		A	B
Think of a number.	\otimes		0
	$\otimes \otimes \dots$	52	2

		C	D
Think of a number.	\otimes		6
	$2 \otimes + 26$	40	

		E	F
Think of a number.	x		
	$3x + 6$	18	33

		G	H
Think of a number.	x		
	$4x + 7$	11	35

If x is:	then $30x + 75$ is:
10	375
20	
25	
35	

If:	then x is:
$2x + 10 = 50$	20
$x + 17 = 92$	
$10 + 13x = 23$	
$8x - 2 = 22$	

7 Choose the correct answer.

Johanna has 6 boxes of erasers and 3 loose erasers. She counted all of her erasers and found she had exactly enough to give 1 eraser to each of the 81 fourth graders in her school. Which equation can be used to figure out the number of erasers in a box?

A. $81 \div 3 = 6x$

C. $6x + 3 = 81$

B. $81 \times 3 = 6x$

D. $3x + 6 = 81$

8 Use the clues in the table to find the missing parts of the puzzle. You do not need to fill in the **Words** column.

Words	Shorthand	A	B	C	D	E
Think of a number.	x		0			
		12	0	30		75
	$3x + 6$	18	6	36		
			6	26	16	56
Divide by 2						
Subtract the number you thought of first.	3					

9 Describe how you found the shorthand notation for the second row of the above puzzle.

- 10 **Challenge** Rosie brought 2 boxes of tissues and 1 pocket pack of tissues for her class to use. There are 12 tissues in the pocket pack. Rosie announced that she had brought 212 tissues. Which of the following describe this situation?

A. $212 - 2x = 200$

B. $2x + 12 = 212$

C. $x + 212 = 412$

D. $2x - 12 = 212$

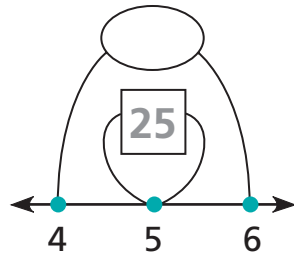
Using Square Numbers to Remember Other Multiplication Facts

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.6A, 4.15A

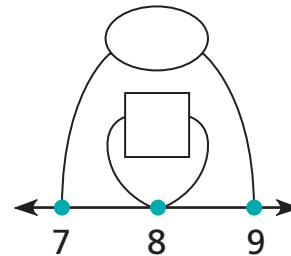
Complete the diagrams and number sentences.

1



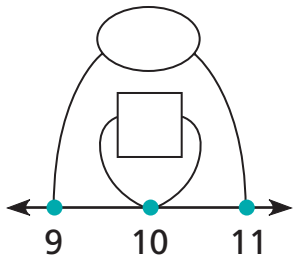
$$\begin{array}{rclcl} 5 & \times & 5 & = & \square \\ 4 & \times & 6 & = & \bigcirc \end{array}$$

2



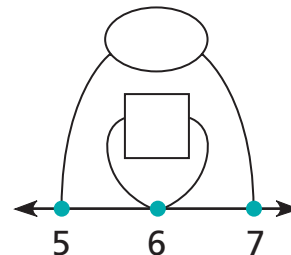
$$\begin{array}{rclcl} 8 & \times & 8 & = & \square \\ 7 & \times & 9 & = & \bigcirc \end{array}$$

3



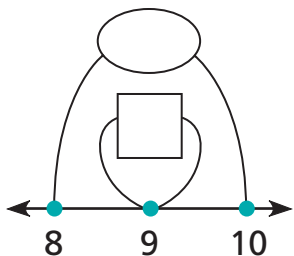
$$\begin{array}{rclcl} 10 & \times & 10 & = & \square \\ 9 & \times & 11 & = & \bigcirc \end{array}$$

4



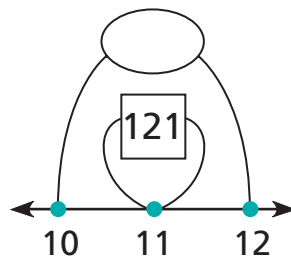
$$\begin{array}{rclcl} 6 & \times & 6 & = & \square \\ 5 & \times & 7 & = & \bigcirc \end{array}$$

5



$$\begin{array}{rclcl} 9 & \times & 9 & = & \square \\ \bigcirc & \times & \bigcirc & = & \bigcirc \end{array}$$

6



$$\begin{array}{rclcl} \square & \times & \square & = & \square \\ 10 & \times & 12 & = & \bigcirc \end{array}$$

Complete the related number sentences.

7

$12 \times 12 = \square$

$11 \times 13 = \bigcirc$

8

$20 \times 20 = \square$

$19 \times 21 = \bigcirc$

9

$15 \times 15 = \square$

$\bigcirc \times \bigcirc = \bigcirc 224$

10

$25 \times 25 = \square 625$

$24 \times 26 = \bigcirc$

11

$\square \times \square = \square 324$

$17 \times 19 = \bigcirc$

12

$\square \times \square = \square$

$\bigcirc \times \bigcirc = \bigcirc 899$

13 Challenge Write two examples that show that:

$$A \times A - 1 = (A + 1) \times (A - 1)$$

Generalizing a Multiplication Pattern

NCTM Standards 1, 2, 6, 7, 8, 9, 10

 TEKS 4.4B, 4.15A, 4.15B, 4.16A

1 Complete the chart.

Try some examples of your own.

Words	Shorthand	Ben	Al	Mary	Jane	A	B	C
Think of a number.	n	3	5	11	4			
Multiply your number by itself.	$n \cdot n$	9						
Subtract 1 from the product.	$(n \cdot n) - 1$	8						
Add 1 to the number you thought of.	$n + 1$	4						
Subtract 1 from the number you thought of.	$n - 1$	2						
Multiply your results together.	$(n + 1) \cdot (n - 1)$	8						

2 Draw a picture to show that $(5 \cdot 5) - 1 = (5 + 1) \cdot (5 - 1)$.

Use square numbers to help you find the products below.

3 $31 \cdot 29 = \boxed{}$

Hint: What's $30 \cdot 30$?

4 $51 \cdot 49 = \boxed{}$

5 $13 \cdot 11 = \boxed{}$

6 $101 \cdot 99 = \boxed{}$

7 $41 \cdot 39 = \boxed{}$

8 $71 \cdot 69 = \boxed{}$

Use nearby products to find square numbers.

9 $(31 \cdot 31) - 1 = \boxed{}$

Hint: What's $30 \cdot 32$?

10 $(51 \cdot 51) - 1 = \boxed{}$

11 $(41 \cdot 41) - 1 = \boxed{}$

12 $(101 \cdot 101) - 1 = \boxed{}$



13 Challenge Jeneba is tiling a 14-foot by 14-foot square room. She bought exactly enough tiles to do this. But then she changed her mind and decided to tile a room that is 13 feet by 15 feet. Does she have enough tiles to do this?

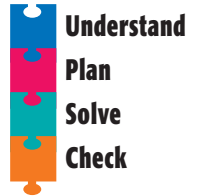
Draw a picture and write a number sentence to explain how you found the answer.

Problem Solving Strategy

Work Backward

NCTM Standards 1, 2, 6, 7, 8, 9, 10

TEKS 4.14A, 4.14B, 4.14C, 4.15B



- 1 On Monday, Lorenzo bought x marbles. On Tuesday, he bought the same number he bought on Monday. On Wednesday, he gave 3 marbles to his brother. On Thursday, he bought 5 more marbles, giving him a total of 14 marbles. The equation $2x - 3 + 5 = 14$ represents the number of marbles Lorenzo had on Thursday.

Fill in the table to find how many marbles Lorenzo bought on Monday.

	Shorthand	Number of Marbles
Monday	x	
Tuesday	$2x$	
Wednesday	$2x - 3$	
Thursday	$2x - 3 + 5$	14

Lorenzo bought _____ marbles on Monday.

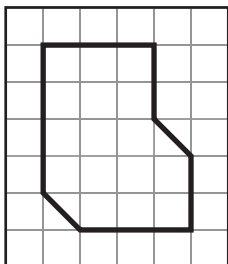
- 2 Jean ended up with 8 when she completed this number puzzle. What number was Jean thinking of? Fill in the table to find out.

Think of a number.	
Double it.	
Add 2.	
Divide by 2.	
Subtract 1.	8

Problem Solving Test Prep

Choose the correct answer.

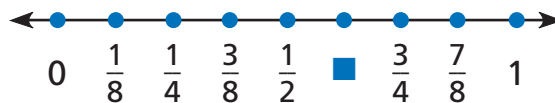
- 1 What is the area of the figure?



- A. $16\frac{1}{2}$ square units
B. 17 square units
C. $17\frac{1}{2}$ square units
D. 18 square units
- 2 Which expression has the same product as 80×427 ?

- A. 800×42
B. 400×827
C. 80×42.7
D. $8 \times 4,270$

- 3 Which fraction should go in the box on the number line?



- A. $\frac{2}{3}$
B. $\frac{5}{6}$
C. $\frac{5}{8}$
D. $\frac{6}{8}$
- 4 Athena has two $\frac{1}{2}$ -gallon containers and one 1-quart container of orange juice. How many 1-cup servings can she make in all?

- A. 5
B. 10
C. 20
D. 24

Show What You Know

Solve each problem. Explain your answer.

- 5 Carmen has \$1.43 when she gets home from school. She paid \$0.35 each way on the city bus, bought lunch for \$1.45, and had a snack for \$0.79. How much money did she leave home with?

- 6 Curtis cut his birthday cake into equal pieces. Six pieces were eaten at the party, and half of the leftover pieces were eaten the next day. The last 3 pieces were eaten two days later. Into how many slices was the cake cut?

Chapter 14

Name _____ Date _____

Review/Assessment

NCTM Standards 1, 2, 6, 7, 8, 9, 10

1 Complete the puzzle. [Lessons 1, 2, 3, and 4](#)

Words	Pictures	Shorthand	A	B	C	D
Think of a number.	⌘	x	5			
Multiply by 2.	⌘⌘					
Multiply by 2 again.	⌘⌘⌘⌘	$4x$			24	
Add 6.	⌘⌘⌘⌘:::					
Subtract the number you thought of first.	⌘⌘⌘:::					33
Divide by 3.	⌘:	$x + 2$				
Add 8.	⌘:::			20		
Subtract the number you thought of first.	:::					

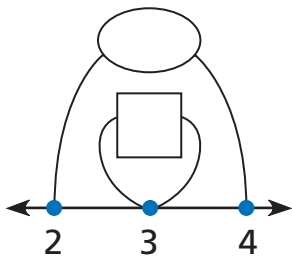
2 What was each person's original number? [Lessons 1, 2, and 7](#)

Words		Jason	Sami	Joel	Rachel
Think of a number.	⌘				
	⌘⌘:::	12	24	30	38

3 Computer Mart sold 147 printers for \$147 each.
Printers Plus sold 146 printers for \$148 each.
Which store made the most money in printer sales?
Explain how you know. [Lesson 5](#)

Complete the diagrams and number sentences. Lesson 5

4



$3 \times 3 = \square$

$2 \times 4 = \bigcirc$

5

$9 \times 9 = \square$

$8 \times 10 = \bigcirc$

6

$\square \times \square = 2,401$

$48 \times 50 = \bigcirc$

7 Draw a picture to show that
 $(4 \bullet 4) - 1 = (4 + 1) \bullet (4 - 1)$ Lesson 6

8 Finish this puzzle so that no matter
what number someone chooses,
the final number will always be 2. Lessons 4 and 7

Think of a number.	x			
Double it.	$2x$			
Add 20.	$2x + 20$			
Subtract the number you thought of first.	$x + 20$			
		2	2	2

Estimation Strategies

NCTM Standards 1, 6, 7, 8, 9, 10

 TEKS 4.5A, 4.5B, 4.14A

Use estimation to help you answer these questions.

1 $116 - 58$

A. 93

C. 38

B. 58

D. 104

2 $179 + 85$

A. 354

C. 304

B. 204

D. 264

3 23×5

A. 108

C. 95

B. 115

D. 150

4 $656 \div 8$

A. 91

C. 82

B. 9

D. 50

5 83×19

A. 1,063

C. 1,477

B. 1,277

D. 1,577

6 $908 + 86$

A. 1,194

C. 1,054

B. 994

D. 1,624

- 7 How many people can sit in a concert hall if there are 57 rows with 79 seats in each row?

A. 4,003

C. 3,003

B. 4,503

D. 3,503

- 8 How many buses are needed to transport 4,224 people if each bus can hold 66 people?

A. 81

C. 64

B. 54

D. 51

Refer to the inventory list to answer the following questions.

6 boxes of shorts

18 boxes of laces

7 boxes of sweatshirts


124 pairs of pants

12 boxes of shirts

24 boxes of balls

16 pairs of socks

19 umbrellas



- 9 If there are 22 shirts per box, how many shirts does the store have?

A. 200

C. 324

B. 204

D. 264
- 10 When Jack unpacked the boxes of balls, he had 168 cans of 3 balls. How many cans of balls are in a box?

A. 15

C. 25

B. 7

D. 21
- 11 There are 4 shelves for pants. How many pairs of pants should go on each shelf?

A. 31

C. 51

B. 25

D. 111
- 12 Jack unpacked the boxes of shorts and put them on 4 shelves. He put 48 shorts on each shelf. How many shorts are in each box?

A. 26

C. 32

B. 52

D. 42

- 13 **Challenge** If half a box of sweatshirts has 34 sweatshirts, how many sweatshirts does the store have?

A. 426

C. 476

B. 238

D. 526
- 14 **Challenge** If 210 is a third of the store’s laces, how many laces are in each box?

A. 6

C. 70

B. 630

D. 35

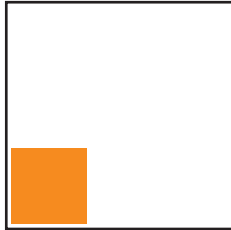
Estimating and Checking Length and Perimeter

NCTM Standards 1, 3, 4, 6, 7, 8, 9, 10

 TEKS 4.11A, 4.14A, 4.15A

Estimate the perimeter and area of the following shapes.
Use the fact that the area of an orange tile is 1 square centimeter.

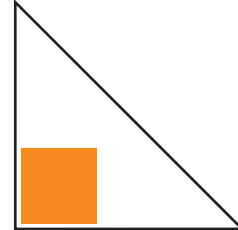
1



The perimeter is about _____ cm.

The area is about _____ sq cm.

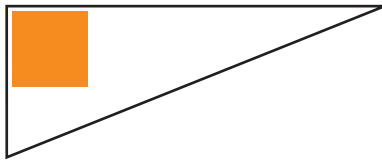
2



The perimeter is about _____ cm.

The area is about _____ sq cm.

3



The perimeter is about _____ cm.

The area is about _____ sq cm.

4



The perimeter is about _____ cm.

The area is about _____ sq cm.

Say whether the given measures are likely or unlikely.

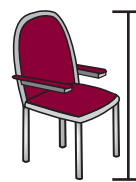
5



height = 6 meters

likely or unlikely

6



height = 80 cm

likely or unlikely

7



area = 2 square meters

likely or unlikely

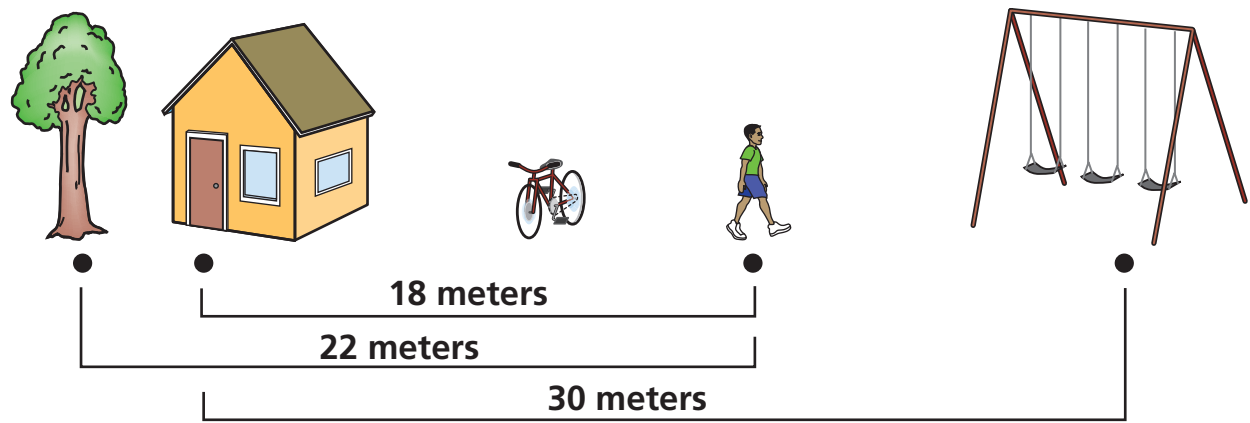
8



area of a book's cover = 8 sq cm

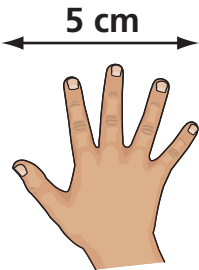
likely or unlikely

Use the picture to answer the questions.



- 9 How far is the student from the swingset? _____ meters
- 10 How far is the tree from the house? _____ meters
- 11 How far is the tree from the swingset? _____ meters
- 12 What can you say about the bicycle’s location?

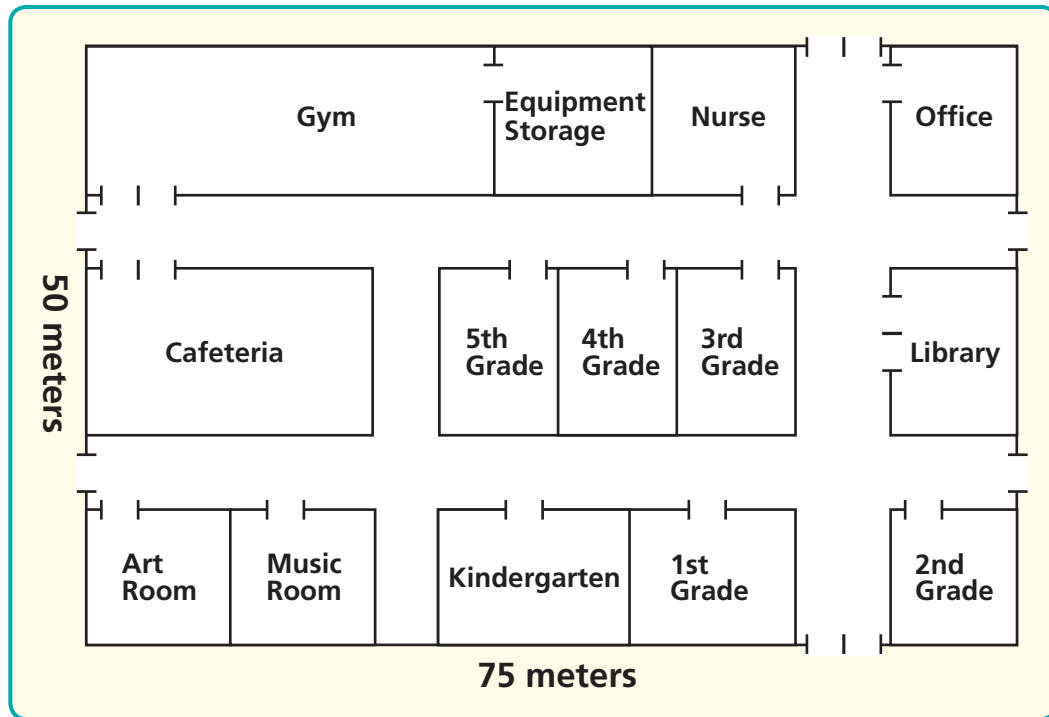
13 Challenge Charlotte used her hand to estimate the perimeter of a drawing. She knows her hand is about 5 cm wide. If she found the perimeter to be 38 hand widths, what is her estimate of the perimeter, in centimeters and meters?



_____ centimeters _____ meters

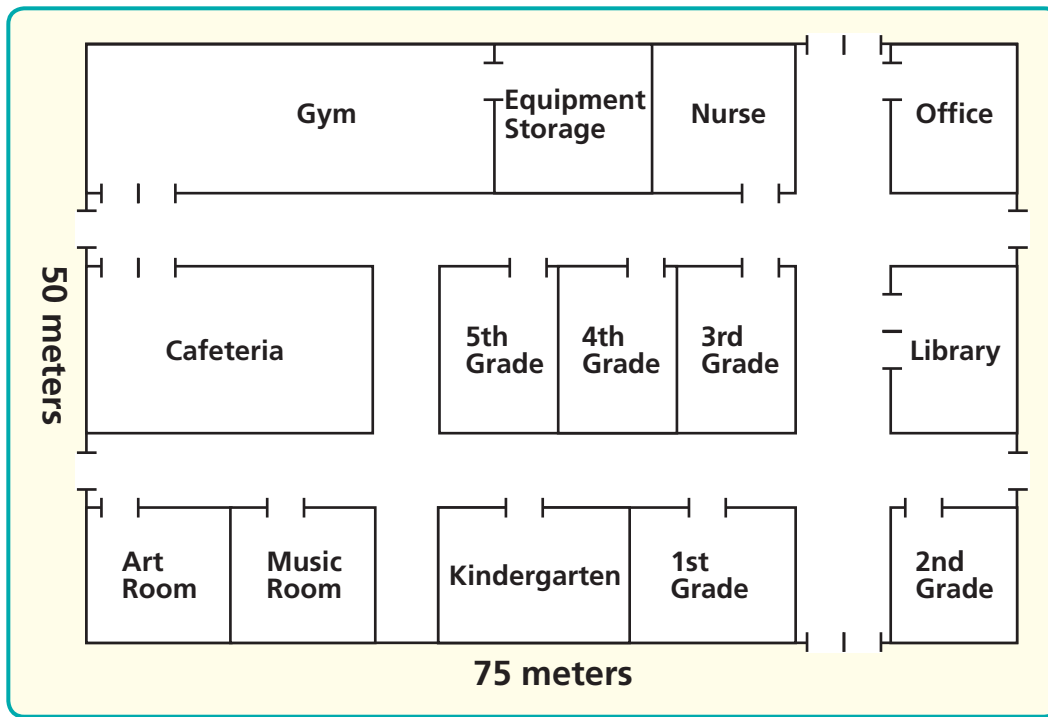
Designing a School

NCTM Standards 1, 3, 4, 6, 7, 8, 9, 10

 TEKS 4.11A


Use this school's floor plan to answer the questions below.

- 1 Which room has the largest area? _____
- 2 Which grade's classroom has the smallest area? _____
- 3 One wall in the office is 15 meters long and another is 10 meters long. Including the door, what is the office's perimeter? _____ meters
- 4 One wall of the cafeteria is 20 meters long and another is 15 meters long. What is the area of the cafeteria's floor? _____ sq m
- 5 The back wall of the 3rd, 4th, and 5th grade classrooms is actually one long 35-meter wall. The side walls are each 15 meters long. Approximate the area of the 5th grade classroom's floor. about _____ sq m
- 6 Approximate the perimeter of the 4th grade classroom. about _____ meters



This year, the kindergarten class has many more students than the 1st grade class, so the wall separating the two classes is being moved 5 meters to make the kindergarten classroom bigger. The classrooms were the same size to begin with.

- 7 If the old perimeter of the kindergarten classroom was 55 meters, what is the new perimeter? _____ meters
- 8 What is the new perimeter of the first grade class room? _____ meters
- 9 The long wall in the kindergarten classroom is now 22.5 meters in length. What is the new area of the floor of the kindergarten classroom? _____ sq m
- 10 What is the new area of the floor of the first grade classroom? _____ sq m

11 **Challenge** Estimate the total perimeter of all the hallways. _____ meters

12 **Challenge** Estimate the total area of the floor space of all the hallways. _____ sq m

Estimating and Checking Capacity

NCTM Standards 1, 4, 6, 7, 8, 9, 10

 TEKS 4.11A, 4.16B

How can you use these containers to measure the amounts given in Problems 1–2?

1 $7\frac{1}{2}$ liters

a 3-liter jug
an 8-liter bucket
a 330-milliliter can
a $1\frac{1}{2}$ -liter bottle

2 1 liter

How can you use these containers to measure the amounts given in Problems 3–4?

3 $1\frac{1}{2}$ quarts

a 1-gallon container
a 12-ounce can ($1\frac{1}{2}$ cups)
a quart container

4 4 ounces ($\frac{1}{2}$ cup)

Say whether the estimated capacity of each object is reasonable. If it is not, give a reasonable estimate.

5



The bucket's capacity is about 5 gallons.

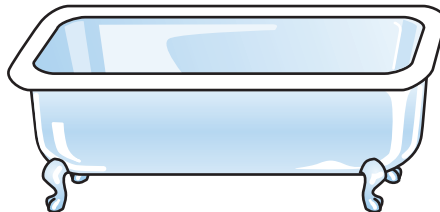
Is this a reasonable estimate?

yes no

If not, what's a reasonable estimate?

about _____ gallons

6



The tub's capacity is about 5 liters.

Is this a reasonable estimate?

yes no

If not, what's a reasonable estimate?

about _____ liters

7



The glass's capacity is about 20 ounces.

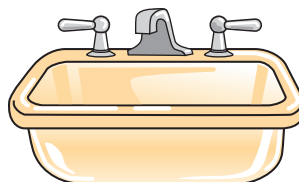
Is this a reasonable estimate?

yes no

If not, what's a reasonable estimate?

about _____ ounces

8



The sink's capacity is about $1\frac{1}{2}$ quarts.

Is this a reasonable estimate?

yes no

If not, what's a reasonable estimate?

about _____ quarts



9 Challenge Give an example of a container with a capacity of about 1 pint.

Comparing Units of Capacity

NCTM Standards 1, 4, 6, 7, 8, 9, 10

 TEKS 4.4D, 4.4E, 4.5B, 4.11B, 4.14A

Use estimation to help you compare these capacities.

1 18×16 gallons <input type="text"/> 19×16 gallons	2 67×8 cups <input type="text"/> 66×4 pints
3 74×19 liters <input type="text"/> 74×19 quarts	4 83×4 quarts <input type="text"/> 87×1 gallon
5 38×27 pints <input type="text"/> 38×14 quarts	6 22×82 cups <input type="text"/> 21×22 quarts

Answer the questions.

- 7 The soccer coach brought 2 gallons of water to the game and the assistant coach brought 1 gallon of fruit juice. The drinks were shared equally among the 24 kids on the team. How many cups could each player have?

- 8 Before driving 456 miles to grandpa's house, Jen's mom filled the car with gas. The car holds 18 gallons of gas. If the car uses 10 gallons to go 240 miles, will Jen's mom need to fill the car with gas again during the drive? If so, how much more gas will she need? If not, how much will they have left in the tank?

Compare. Use $<$, $>$, or $=$.

9 $\frac{1}{2}$ gallon 2 pints

10 1.1 gallon 4 quarts

11 4.5 quarts $\frac{3}{4}$ gallon

12 $\frac{10}{10}$ pints 10 cups

13 $\frac{7}{8}$ gallon 10 cups

14 3 liters 2 quarts

15 5 cups $2\frac{1}{2}$ pints

16 4 pints $3\frac{1}{2}$ liters

17 1.7 liters 5.07 cups

18 $\frac{3}{4}$ cup $\frac{3}{4}$ pint

19 7.5 cups $\frac{6}{12}$ gallon

20 987.5 ml $\frac{1}{2}$ gallon

21 $\frac{5}{6}$ quart 0.5 liter

22 24 cups 1.5 gallons

23 Challenge Fill in the blanks to make the statements true.

$67 \times \underline{\hspace{2cm}} \text{ cups} = 8 \text{ quarts} \times 67$

$2.5 \text{ pints} \times 17 = \underline{\hspace{2cm}} \text{ cups} \times 17$

$\frac{1}{2} \text{ gallon} + 2 \text{ cups} = \underline{\hspace{2cm}} \text{ pints} + 1 \text{ cup}$

$\frac{9}{10} \text{ pint} > \underline{\hspace{2cm}} \text{ cups}$

Estimating and Checking Weight

NCTM Standards 1, 4, 6, 7, 8, 9, 10

 TEKS 4.4D, 4.4E, 4.5B, 4.14A, 4.14B, 4.16B**Answer the questions.**

- 1 An elevator can hold 2,000 kilograms. An average adult weighs 64 kilograms. About how many people can go on an elevator at once?

about _____ people

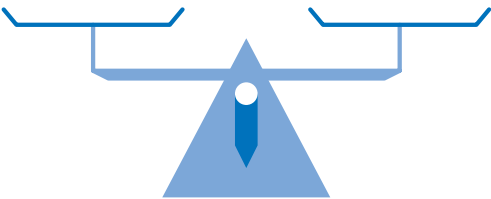
- 2 The Ramon family is moving to another country. They will ship all of their belongings on a boat. The cargo space they are renting can hold 1,000 kilograms. They have 4 beds that each weigh 50 kilograms, 4 sofas that each weigh 55 kg, 4 dressers that each weigh 60 kg, and a table and chairs that weigh 112 kg. About how much more weight can they ship?

about _____ kg

- 3 The second floor of a factory stores boxes that weigh about 15 kg each. The floor can hold 4,590 kg. About how many boxes can be stored on the second floor?

about _____ boxes

How can these weights be used to measure the following weights on a balance scale?



4 4 kg _____



5 14 kg _____



6 3 kg _____



7 10 kg _____



8 **Challenge** Are there any other weights that can be measured with just a balance scale and a 7 kg, an 11 kg, and a 21 kg weight?

Comparing Units of Weight

NCTM Standards 1, 4, 6, 7, 8, 9, 10

 TEKS 4.11A, 4.11B, 4.15A**Choose the closest weight.****1** A box weighs 3 pounds.

- A. 3 kg C. 6 kg
B. 30 kg D. 1 kg

2 A bicycle weighs 5 kilograms.

- A. 5 lbs C. 10 lbs
B. 50 lbs D. 2 lbs

3 A plate weighs 8 ounces.

- A. 8 kg C. 1 lb
B. 8 g D. 250 g

4 A notebook weighs 15 grams.

- A. 15 oz C. 1 lb
B. $\frac{1}{10}$ lb D. 0.5 kg

5 A mug weighs 350 grams.

- A. 0.35 kg C. 35 kg
B. 3.5 kg D. 350 oz

6 A wood table weighs 20 kilograms.

- A. 2,000 g C. 200,000 g
B. 20,000 g D. 200 g

7 A cell phone weighs 0.25 pounds.

- A. 4 oz C. 12 oz
B. 8 oz D. 16 oz

8 A book weighs 1 kilogram.

- A. 100 g C. 2 lbs
B. 1,000 oz D. 0.5 lbs

9 Put these weights in order from lightest to heaviest.

1 kg

1 ton

2 kg

2 g

2 oz

3 lbs

2 lbs

	,		,		,		,		,	
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Answer the questions.



10 What are two ways of comparing weights of objects?



11 Can 1 gallon of oil be heavier than 1 gallon of water? Why or why not?



12 **Challenge** Do you think that 1 kilogram of feathers can fit into a 1 gallon jug? Why or why not?

Using Equations to Estimate

NCTM Standards 1, 2, 4, 6, 7, 8, 9, 10

TEKS 4.11A, 4.11B, 4.16B

Using shorthand notation, write an equation to describe each picture.

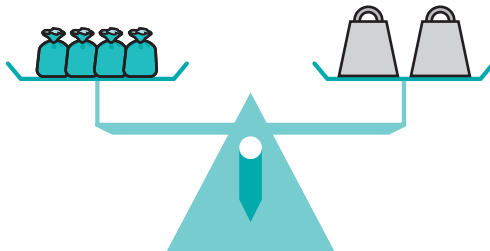


= 1 kg



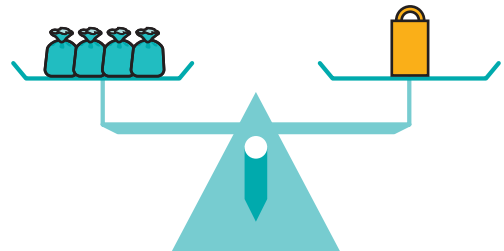
= 1 lb

1



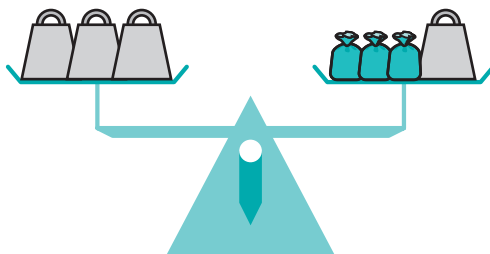
$$4x = 2 \text{ kg}$$

2



$$\underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

3



$$\underline{\hspace{1cm}} = \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$$

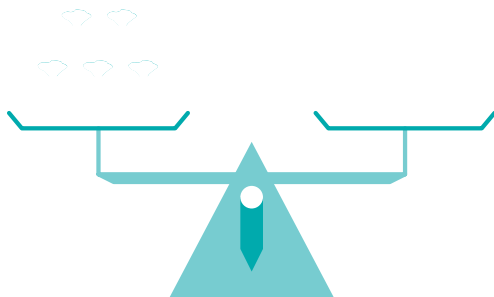
4



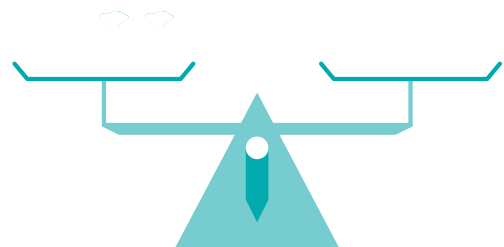
$$\underline{\hspace{1cm}} + \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

Draw a picture to match the equation.

5 $5x = 3 \text{ lb}$



6 $2x + 1 \text{ lb} = 5 \text{ kg}$



Complete the number sentences.

7

$$\underline{\hspace{2cm}} \text{ g} = 1 \text{ kg}$$

8

$$\underline{\hspace{2cm}} \text{ oz} = 1 \text{ lb}$$

9

$$\underline{\hspace{2cm}} \text{ oz} = 5 \text{ lb}$$

10

$$\underline{\hspace{2cm}} \text{ g} = \frac{1}{2} \text{ kg}$$

What is x ?

11 $x + 750 \text{ g} = 1 \text{ kg}$

$$x = \underline{\hspace{2cm}}$$

12 $1 \text{ lb} - x = 12 \text{ oz}$

$$x = \underline{\hspace{2cm}}$$

13 $3 \text{ kg} = x + 2,000 \text{ g}$

$$x = \underline{\hspace{2cm}}$$

14 $3 \text{ oz} + x = 2 \text{ lb}$

$$x = \underline{\hspace{2cm}}$$



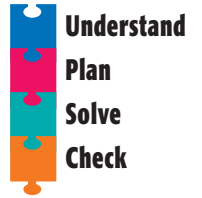
15 **Challenge** 9 bags weigh 5 kg, and 13 boxes weigh 6 kg. Which is heavier, a bag or a box? Explain your answer.

Problem Solving Strategy

Act It Out

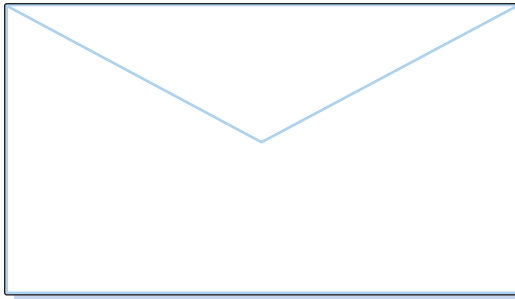
NCTM Standards 1, 2, 4, 6, 7, 8, 9, 10

TEKS 4.14B, 4.14C



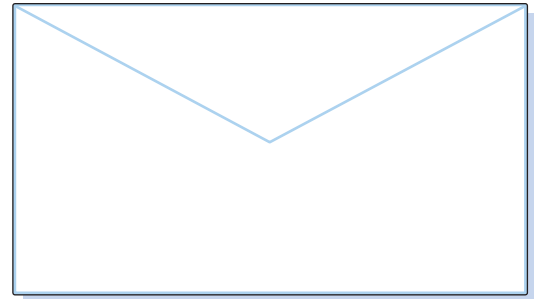
- 1 Xavier has several 3¢ stamps and 7¢ stamps in his desk drawer. He has weighed several letters and knows what postage each one needs. Can he use only the stamps he already has and put the exact postage on each letter?

A



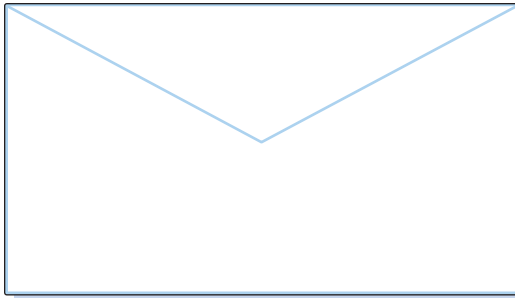
27¢

B



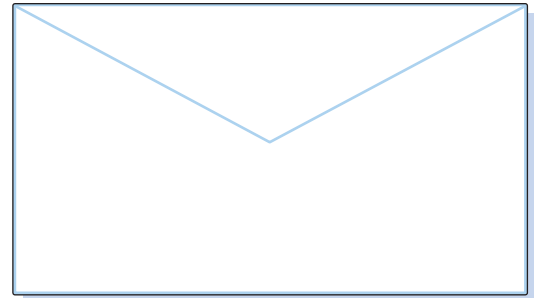
11¢

C



30¢

D



37¢

- 2 Sally is taller than Jake and Laura. Miguel is taller than Jake but shorter than Laura. Selby is shorter than Jake. Robert is taller than Sally. Put these six students in order from shortest to tallest.

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Problem Solving Test Prep

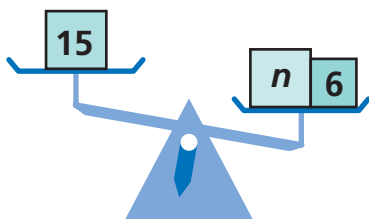
Choose the correct answer.

- 1 The value of 18×18 is 324.

Which expression has a product that is the same as $(324 - 1)$?

- A. 17×19 C. 18×19
B. 17×18 D. 16×20

- 2 Which CANNOT be the value for the variable n ?



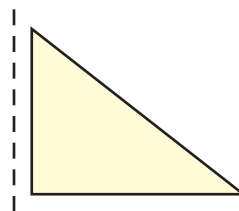
- A. 9
B. 10
C. 15
D. 21

- 3 Choose the best estimate.

$$9 \overline{)741}$$

- A. 60 C. 80
B. 70 D. 90

- 4 Which statement is NOT true of the reflection of the triangle over the line?



- A. It is congruent to the original.
B. It faces the opposite direction of the original.
C. It is a right triangle.
D. It is the same shape but larger than the original.

Show What You Know

Solve each problem. Explain your answer.

- 5 Evan has several 3-pound and 5-pound weights. Can he use a balance scale to show all whole-number weights between 15 and 20 pounds? Explain.

- 6 Corey has 20 small cubes. What is the least number of additional cubes he needs to build a larger cube that uses all the small cubes? Explain.

Use estimation to find the answer. **Lesson 1**

1 $267 + 843$

- A. 1,010 C. 1,110
B. 1,210 D. 1,020

2 $911 - 365$

- A. 696 C. 646
B. 546 D. 596

3 37×22

- A. 814 C. 1,014
B. 614 D. 684

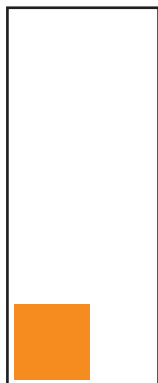
4 $324 \div 9$

- A. 51 C. 45
B. 25 D. 36

5 The orange square is 1 sq cm. **Lesson 2**

Perimeter:

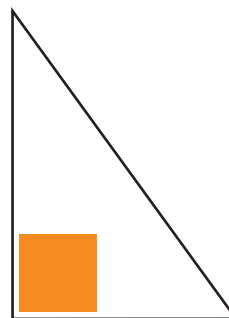
- A. 14 cm
B. 25 cm
C. 26 cm
D. 50 cm



6 The orange square is 1 sq cm. **Lesson 2**

Area:

- A. 24 sq cm
B. 18 sq cm
C. 12 sq cm
D. 6 sq cm



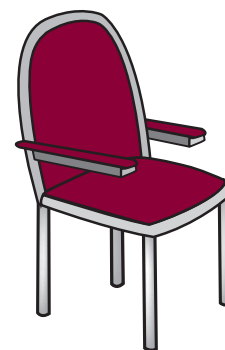
7 Capacity: **Lesson 4**

- A. 1 gallon
B. 8 ounces
C. 3 quarts
D. 1 liter



8 Weight: **Lesson 6**

- A. 0.25 tons
B. 15 kilograms
C. 8 pounds
D. 2 grams

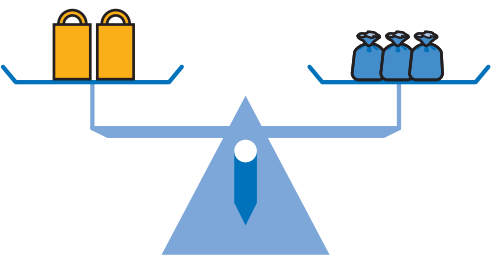


Compare. Use $>$, $<$, or $=$. Hint: Use estimation. Lessons 5 and 7

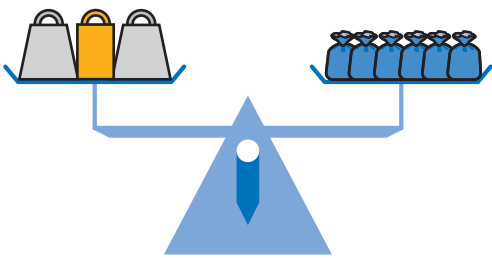
9 28 gallons \times 9 <input type="text"/> 28 cups \times 16	10 54 cups \times 27 <input type="text"/> 27 pints \times 54
11 33 quarts \times 42 <input type="text"/> 66 pints \times 33	12 81 cups \times 17 <input type="text"/> 22 quarts \times 18
13 55 \times 12 liters <input type="text"/> 55 \times 12 quarts	14 19 liters \times 52 <input type="text"/> 18 \times 52 quarts
15 24 kg \times 31 <input type="text"/> 93 \times 24 lbs	16 47 lbs \times 21 <input type="text"/> 25 kg \times 21

17 How can you use 8-inch pencils to estimate the perimeter of a classroom window? What might be a reasonable estimate of the perimeter in feet? Lessons 3 and 9

Lesson 8

18

= 3x

19

1 lb + =